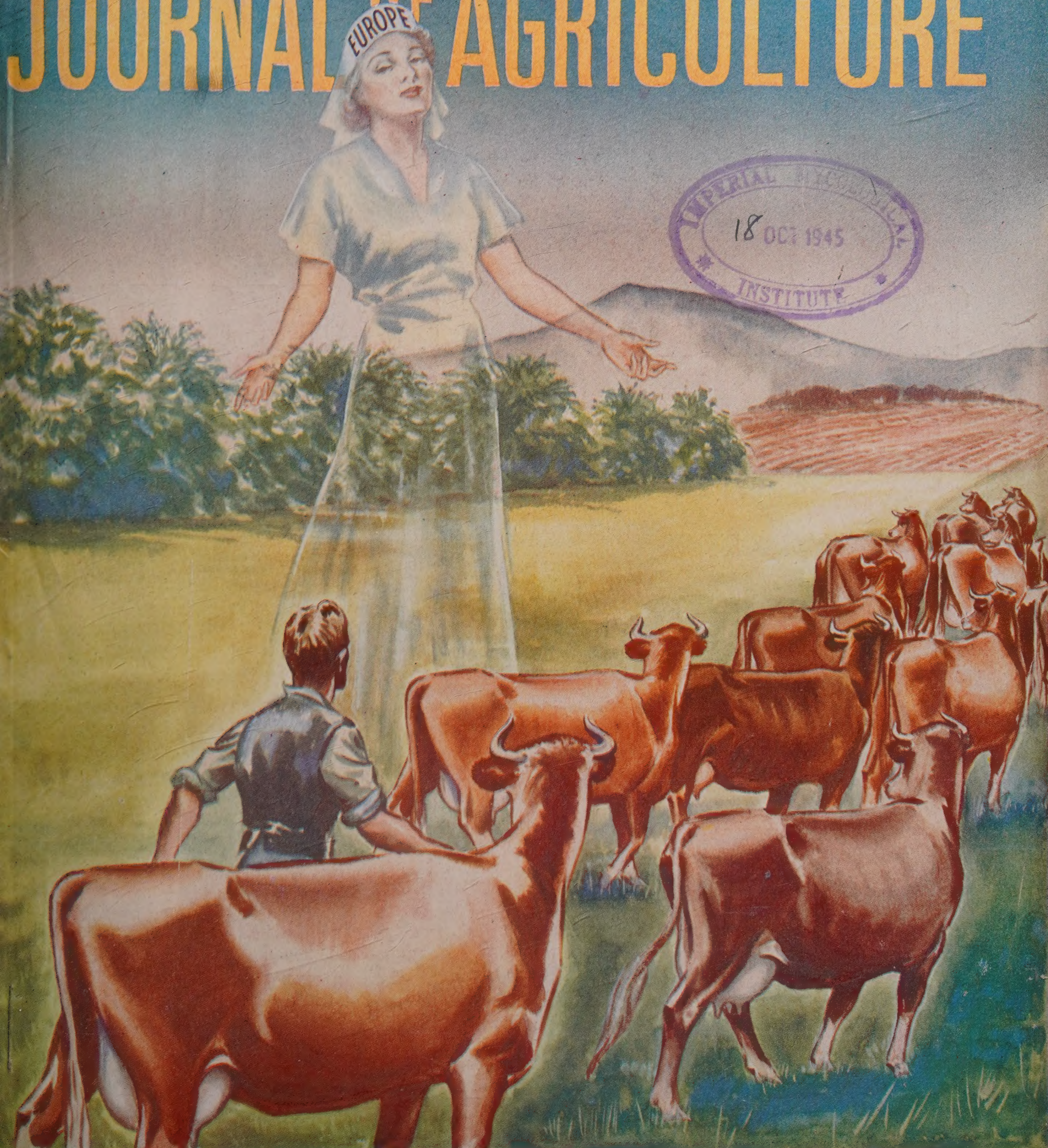
# New Zealand JOURNAL OF AGRICULTURE



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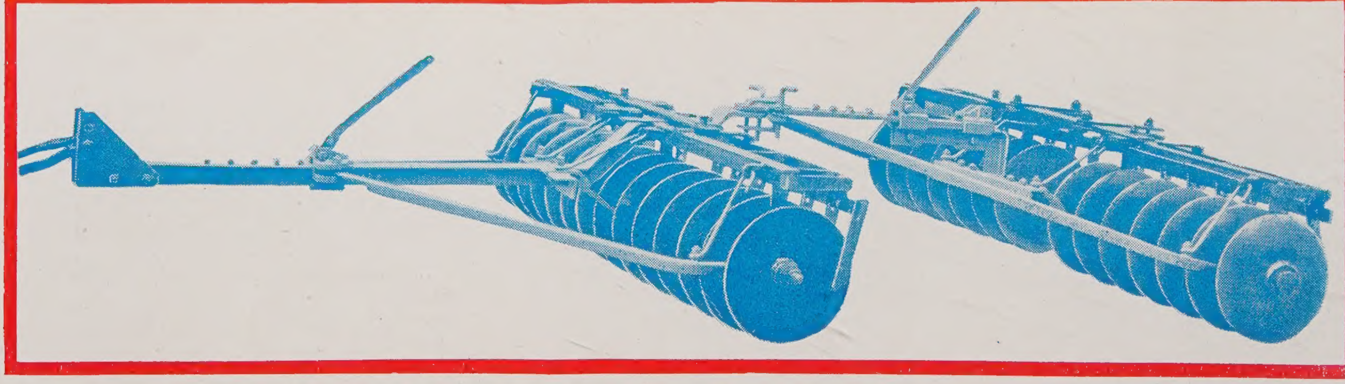

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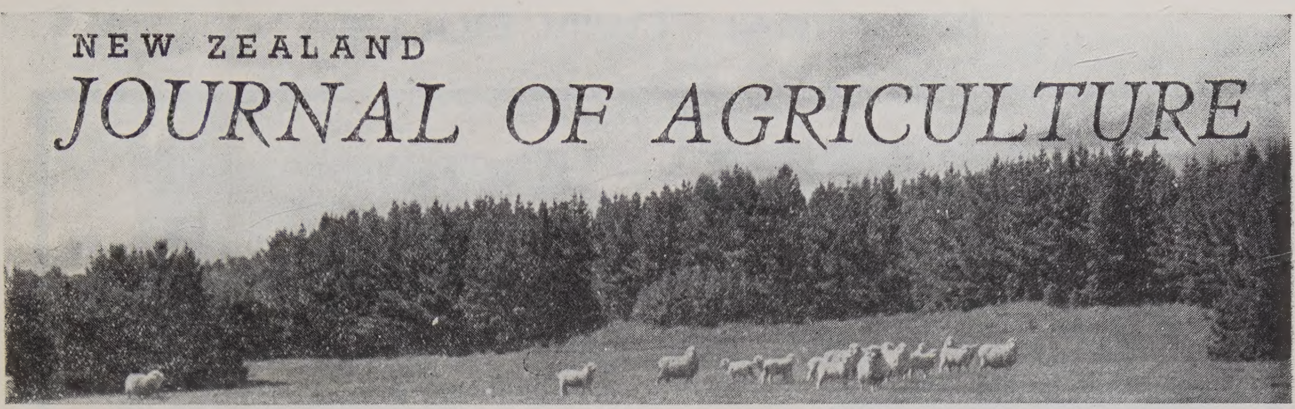

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# TWIN CALF RESEARCH AT RUAKURA

**AS the new calving season approaches, attention is again focused on the search for identical twin calves which is a recurring feature in the activities of the Ruakura Animal Research Station. This article explains the reasons why these animals are wanted and describes methods for identifying them, and is an appeal to all dairy farmers in the North Island for their co-operation in locating identical twin calves.**

*By*

**J. J. HANCOCK,**
*Assistant Research Officer,*
*Ruakura Animal Research*
*Station.*

THOUGH the underlying causes of twinning in cattle are still obscure, it is commonly held that there are at least two different kinds of twins. First, the common type which have developed from two different eggs which were shed at the same time. Twins of this type are no more alike than full brothers or sisters. They may be either of the same or different sex and are termed "fraternal." Twins of the other kind which are called "identical" have developed from one egg which, after fertilisation by one sperm, has divided into two individuals at a very early stage of pregnancy. Coming from but one fertilised egg such twins should carry exactly the same inheritance. Obviously they will be of the same sex.

It is most important to emphasise that identical twins have the same inherited make-up, because it is this condition which makes such animals so eminently suitable for various accurate experiments.

Last year Ruakura Animal Research Station was successful in rearing 17 pairs of identical calves (6 pairs of bull calves and 11 pairs of heifers). Present intentions are to rear these twins under the same conditions to find out how similar they are in the way of productive and reproductive behaviour. This will cover the first lactation period for the heifers and the first breeding year for the bulls.

Having determined in this way the suitability of such animals for careful experimental work, they will be employed thereafter in controlled experiments designed to measure the effects of various treatments independent of inheritance effects. Thus the bull twins, if they are identical in their reproductive behaviour, will provide valuable material for investigating the precise effect upon fertility of such factors as exercise, frequency of use, and hard feed, investigations which are not possible with ordinary bulls because of the very great variability in reproduction behaviour of such animals. To take a concrete example let us assume that it is desired to find out how the number of services per season affects the fertility of bulls. In this case a small number of pairs of identical bulls would be divided into two groups in such a way that the members of each pair would be put into different groups. The bulls in one group would then be given say 60 services per year, and the others 120. The differences in consequent fertility of the bulls would then assuredly be due to the treatment (in this case the varying number of services per year) and not to any chance differences in inheritance of the individuals which were included in the two groups. To do the same work with ordinary bulls would require very many more animals. In this way experimental results should gain appreciably in accuracy and experiments will be carried out at a lower cost and in a shorter time, as fewer experimental animals would be needed.

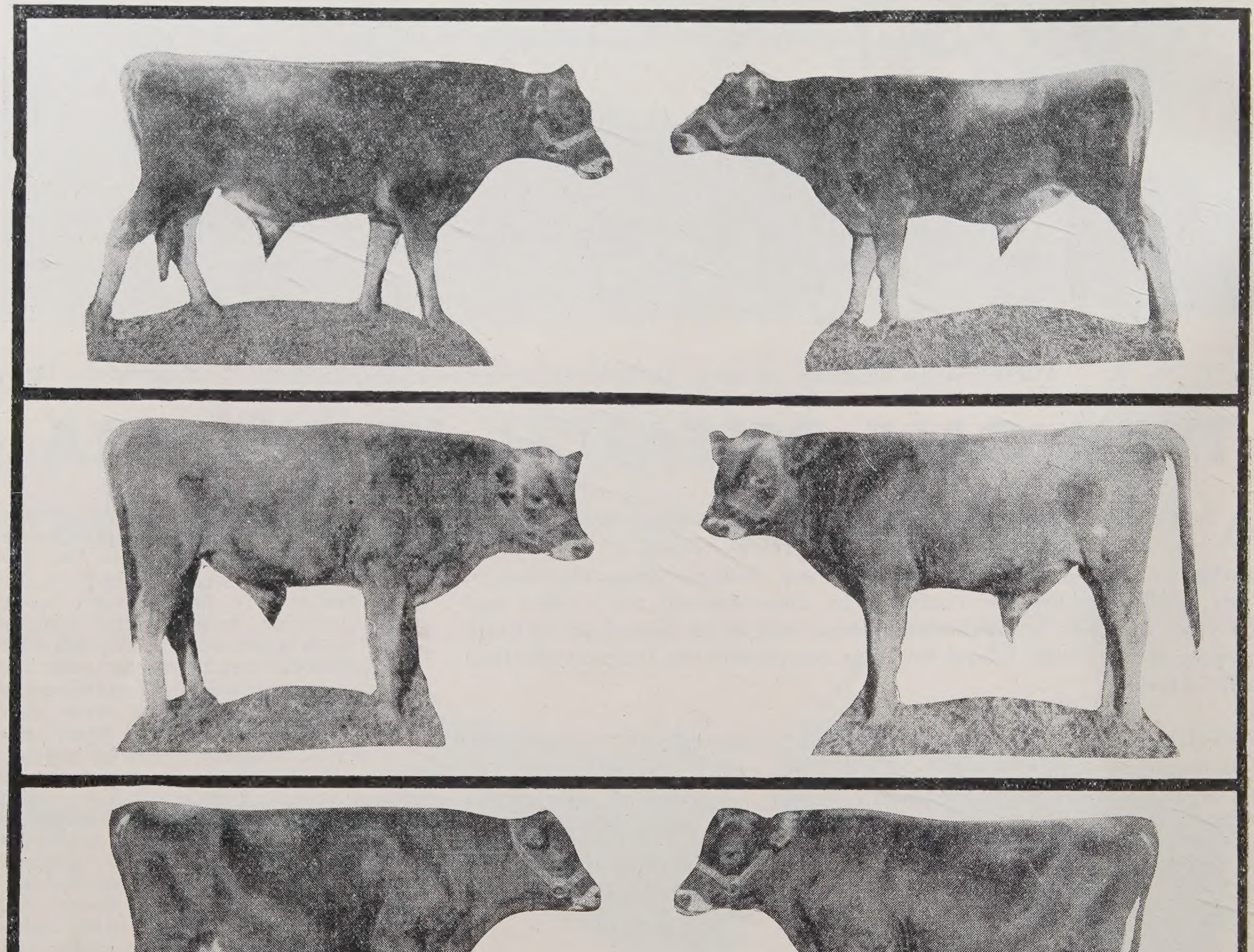
## *Frequency of Twinning*

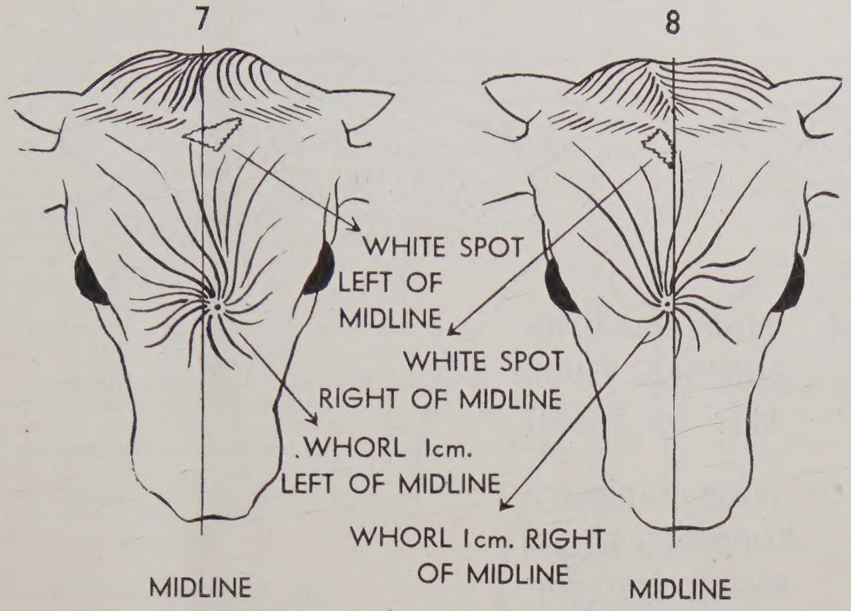
Twinning in cattle is a relatively rare occurrence. The New Zealand Dairy Board's figures indicate that one pair of twins are born every 100 calvings. How many of these twins are identical is difficult to assess, but if a guess can be based on observations in Sweden, it appears that one pair in every 20 pairs of twins are identical. Thus there would be only one pair of identical twins born every 20 years in a herd of 100 cows. This would nevertheless mean that approximately 600 pairs of such animals were born annually in the North Island. As Ruakura needs only, say, 30 pairs of them, 95 per cent. could be missed and the quota still be filled.

## *Recognising Identical Twins*

It is rather easy to recognise identical twins when they are grown, as they are then so strikingly similar that they are very difficult to tell apart. This is borne out by the fact that in every case in which a farmer has reported such animals his judgment has been confirmed. In sharp contrast to this stands the difficulties encountered when it comes to decide whether a pair of twins at the "bobby calf" stage are identical. For instance, last season approximately 180 pairs of like-sex twins were examined. These twins had been reported

# IDENTICAL TWIN BULLS





Whorls on the foreheads of a pair of identical twins.

to Ruakura by their breeders as having good chances of being identical. However, only 25 pairs, or less than 15 per cent., were found to be really identical.

### *The Criterion*

At the present stage of knowledge the best criterion for identical twins may be defined as follows: "The members of a pair of twins must show so small differences in all respects that it is reasonable to conclude that they have exactly identical inherited make-up." By sheer necessity this definition is rather vague.

### *Methods of Examination*

The members of a pair of twin calves can be compared on many different points, of which the most important may be mentioned:—

(a) Size, as measured by weight and eye.
(b) Shape of head as measured by various linear measurements or by eye.
(c) Hair whorls.
(d) Coat colour.
(e) Shape and distribution of white markings.
(f) Pigmentation of mouth, ears, and anus.
(g) Nose pattern.
(h) Sex.
(i) Blood factors.

It may be seen that all of these points except (h) and (i) are more or less subjective and their evaluation thus liable to errors. In addition to this it must be emphasised also that if a pair of twins are indeed identical, they will show at least some actual differences in all or some of these points, because the characteristics listed above are not altogether determined by heredity but may be influenced by small variations in environment before birth or by what is known as pre-natal accidents. Thus, if too rigorous standards are set up, some identical twin calves may be missed.

Differences in sex will exclude approximately 50 per cent. of all twins from consideration, but are obviously otherwise of no help in the recognition of identical twins.

The blood test technique which has been elaborated by Wisconsin workers will divide twins in two sharply-defined groups:

1. Those in which the members of a pair have common blood factors.

2. Those in which the members have different sets of factors.

Twins classed under (1) may or may not be identical, but the odds are that they actually are identical, especially if they are reasonably similar in other respects. Those classed under (2) are certainly fraternal, no matter how alike they are otherwise.

It can be appreciated that the blood test would be of great value in early recognition of identical calves, but this test cannot yet be applied in the field, and its main use at present is to confirm previously-made judgments.

### *Method Adopted*

In view of these considerations, the following method should be adopted: The calves are held closely together with their heads in the same direction and each point considered separately. Differences in nose pattern, mouth pigmentation, hair whorls, coat colour, and shape of head are mentally noted and summed up to form a general impression. Hair whorls are frequently present on the forehead above the

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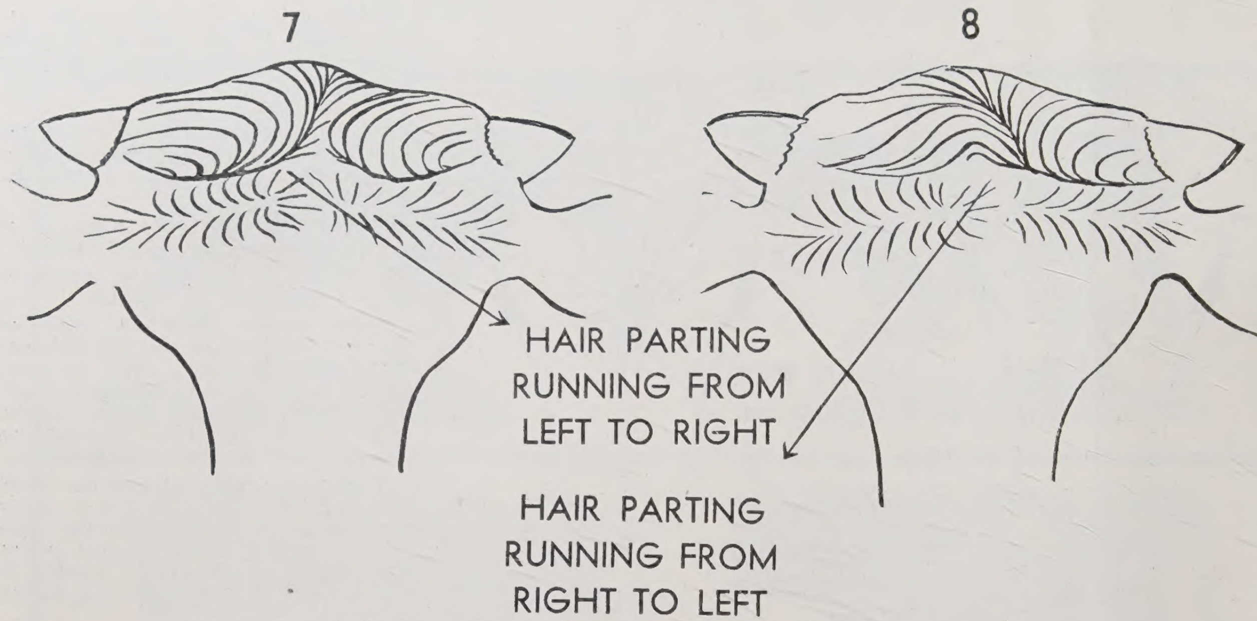
7
8
HAIR PARTING RUNNING FROM LEFT TO RIGHT
HAIR PARTING RUNNING FROM RIGHT TO LEFT

Whorls and hair partings of a pair of identical twins.

eyes, and on the neck and back. If the calves are identical, the equivalent whorls will be of similar shape and approximately in the same position. Fairly often some or all the whorls will show "mirror imaging." This means that the whorls turn in opposite directions. An example of this condition is the identical twin calves numbered 7 and 8 in the accompanying diagrams, of which whorl charts are given as an illustration. The forehead and the poll whorls are "mirror images," but the back whorls are not, since they turn in the same direction. The details of the nose prints will always vary, but the main pattern is the same in calves which are identical. The tongues and gums of Jersey calves are often of slate blue colour, but are sometimes patterned with pink spots. Differences or likenesses here should be noted.

Great importance is laid on coat colour and the distribution of differently-coloured hair. On a superficial examination the coat colour of most Jersey bobby calves may seem rather plain and similar, but a closer inspection will reveal many subtle graduations of tints and shades and true colour differences. These are easier seen if a finger is pushed against the direction the hair grows in such a way that the part of the hairs nearer the roots becomes visible. The Jersey may truly be called a multi-coloured animal in sharp distinction, for instance, to the Friesian, which shows only two main colours—black and white.

The calves should be turned on their backs and the bellies examined, as differences in colour previously not noticed will often show up here. At the same time the size and numbers of teats should also be compared.

Experience has proved that identical calves show remarkably small differences in coat colour and colour distribution apart from the white spots, which may be quite noticeably different both as to extent and position. This makes Jersey twins good subjects from an early recognition point of view. The frequent lack of white spots is rather helpful than otherwise, as differences in size and position of these are easily focused and thus obtrude too much, tending to distort the general impression. It is important to re-emphasise that identical twins may carry differently-sized "spots" of colour.

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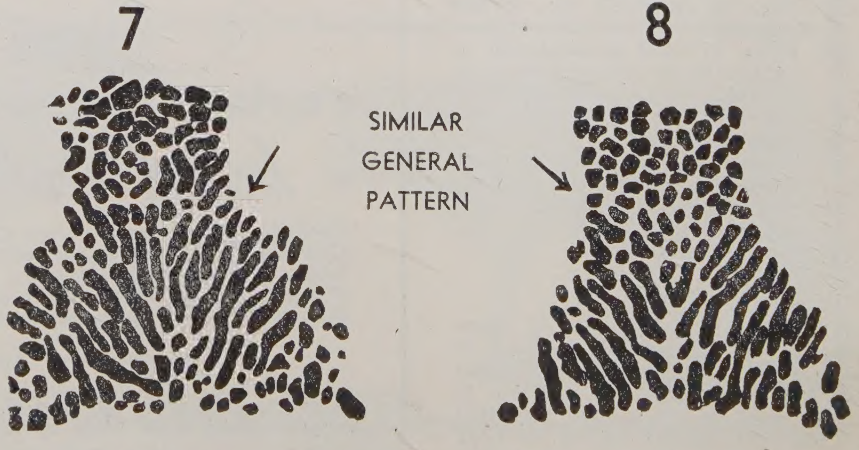


Nose prints of a pair of identical twins. Note the similar pattern.

Shape of head is rather important, as it is known that it is a feature which is strongly inherited. The head, being a compact bony structure, is presumably not easily influenced by pre-natal environment.

It must be strongly emphasised that when comparing the calves mainly points of **differences** and not of **similarities** are searched for. This is because any Jersey calves, superficially at least, have so many points in common that it would be easy to be carried away by wishful thinking into believing that almost any like-sexed pair of twins are identical.

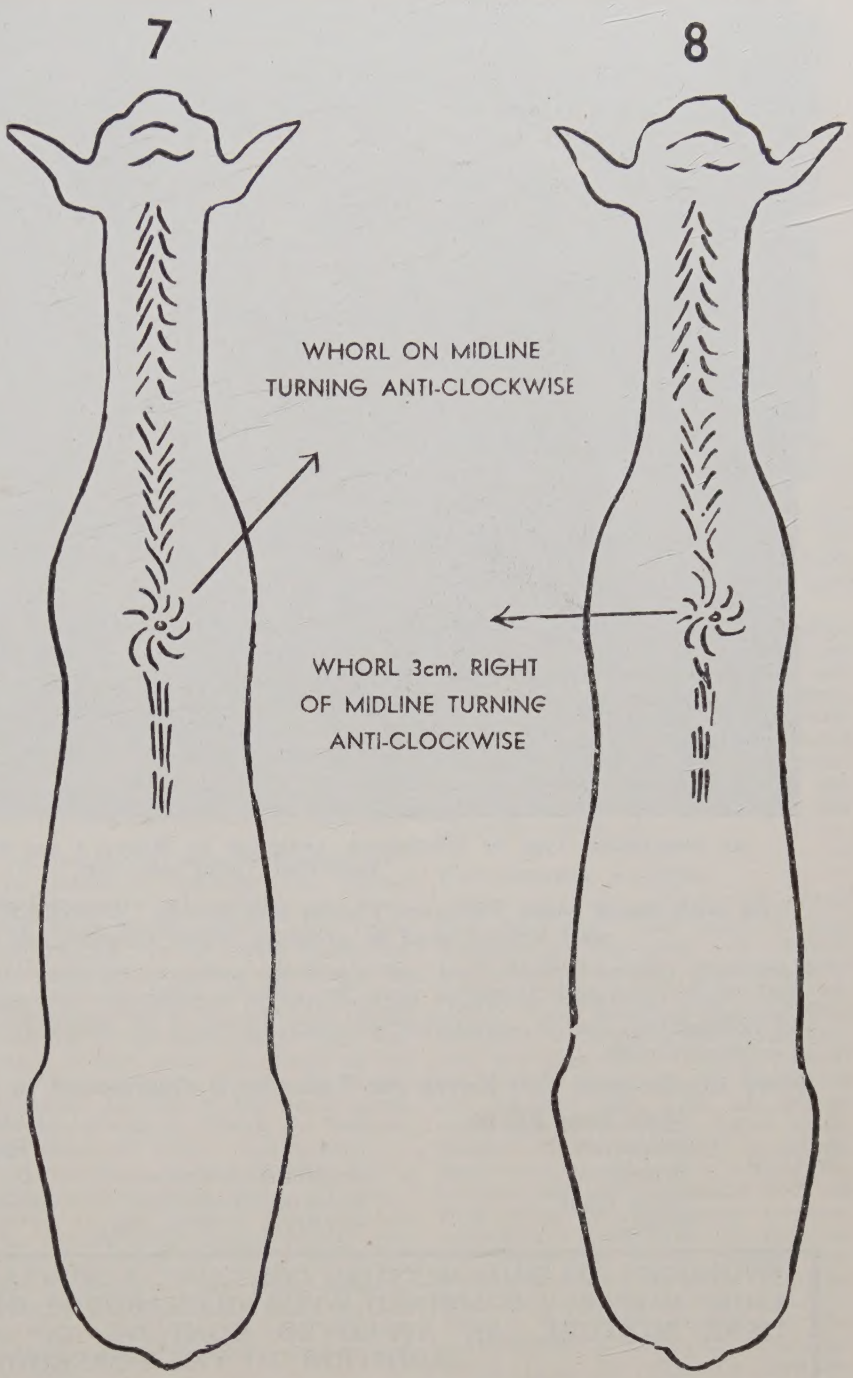
When all differences have been observed and mentally summed up it is in most cases easy to form the final judgment which gives the answer to the question: Are the differences of such kind and their sum small enough to warrant the assumption that the twins are identical?

## *Collection, Payment, Etc.*

The following arrangements have been made to acquire identical calves. Farmers who supply the Waikato Federated Calf Pools (Katikati, Piako, Otorohanga, Putaruru, Tauranga, and Hamilton Pools) should mark any twins they think have a chance of being identical with quick-drying enamel paint or other suitable means, such as wire round the neck with a label attached, and notify the bobby calf lorry driver that the calves are twins. Lead paint should be avoided. It is rather important to use a lot of paint, because considerable difficulties have been experienced in the past in sorting out calves indefinitely marked. It has also been found that red paint does not show up well on Jersey calves.

The calves will be sorted out on arrival at the Horotiu Freezing Works for inspection by an officer from Ruakura Animal Research Station. Calves that are believed identical will be paid for through the pool at £2 per head. If not identical, they will go back into the pool.

Both bull and heifer calves are required. It must be pointed out here that it does not matter whether the calves are small or out of low-producing cows. The lorry drivers will be asked to pick up even underweight calves as long as they have the farmer's guarantee that they are twins.

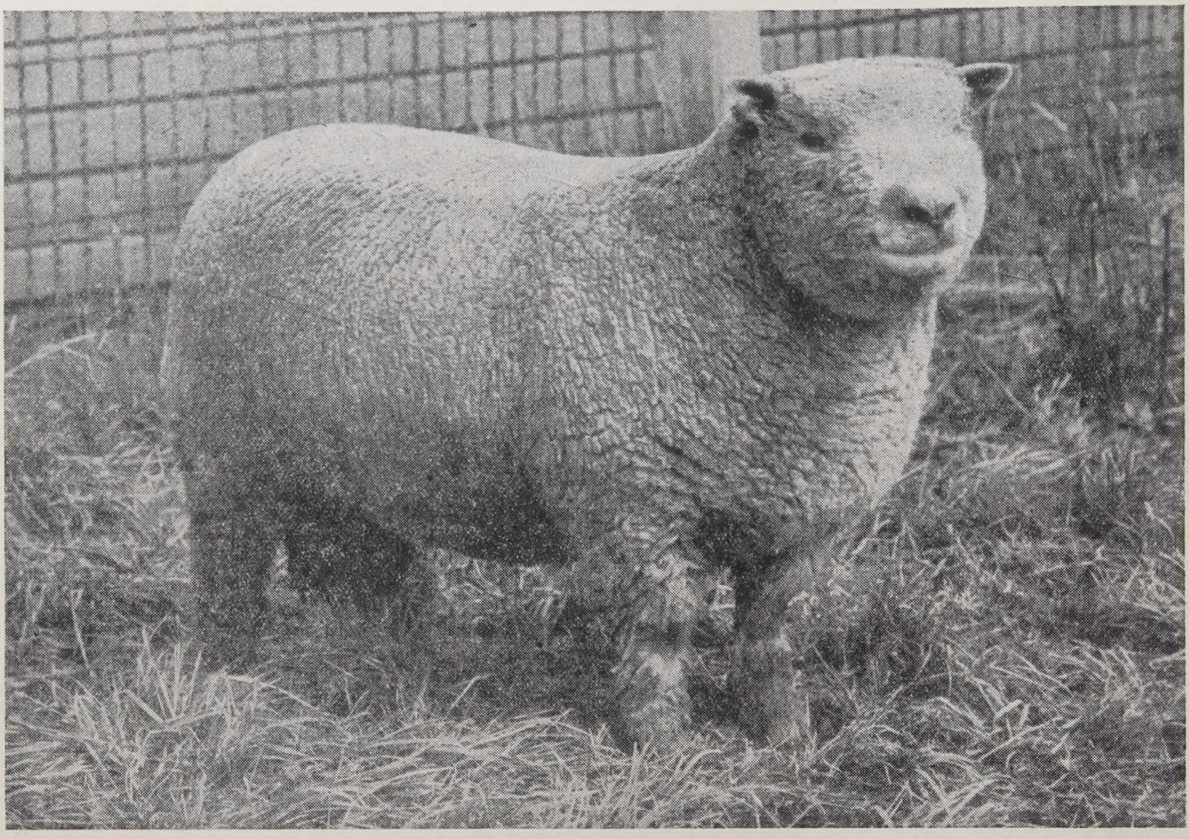

7
8
WHORL ON MIDLINE TURNING ANTI-CLOCKWISE
WHORL 3cm. RIGHT OF MIDLINE TURNING ANTI-CLOCKWISE

Whorls on the backs of a pair of identical twins.

## *Older Twins Preferred*

Unfortunately considerable difficulty has been experienced in rearing twin calves collected through the pools. Last year only 17 out of 25 pairs survived. It is thought that better results would be obtained if calves could be kept until they are older before being transferred to Ruakura. It would be appreciated, therefore, if farmers who are prepared to assist in this way would communicate with the Ruakura Animal Research Station ('phone 4790, Hamilton) when they have any twin calves which appear to be identical. Arrangements will then be made to inspect the twins, and if they are identical, a bonus of 1/6 per head will be paid for every day the farmer keeps them up to 6 weeks of age. This will be in addition to the £2 per head, so that calves at 6 weeks would be worth £5/3/- each. If the farmer will keep the calves until they are weaned, a price of £7 per head will be paid.

**Remember, every pair of identical twins located counts!**



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# FARMING IN NEW ZEALAND

## Store and Breeding Stock

**THE movement of store and breeding stock between extensive pastoral farms and intensive fattening farms, the methods of marketing, and the chief centres of distribution are described in this article, which will be followed by one on the marketing of fat stock and the meat export industry.**

*By*

**A. T. SHANNON,**
*Field Economist, Hamilton.*

THE mutual dependence of high country or store farms on low country or fattening farms is a feature of farming in New Zealand. Apart from dairying, it pays the farmer on the better class of country to concentrate on the production of fat lambs and fat cattle and to leave the breeding of store stock and ewes to the farmer with rough feed on hilly or partly-developed country. It pays the farmer on pastures which have not reached the high quality suitable for fattening stock, perhaps because of the climate, or the soil type, or the high cost of hill country pasture improvement, to concentrate on the production of wool and to market store lambs, store wethers, cull ewes, and store beef cattle. As this stock reaches a stage at which it is an uneconomic or unsound practice to continue carrying them on harder country, there is a continuous seasonal movement to the improved areas of the valleys and plains. That is the trade relied on by the store stock farmer, but while the prices paid by the fattener from season to season are closely related to fat stock and wool values, they show a much wider fluctuation from bad to good times.

Marketing through the stockyards is a primary concern of the store stock farmer. In his normal routine in the North Island he gets his store cattle away to spring and autumn cattle fairs, shears in December and the New Year, weans in January, culls his flock for the sheep fairs of January and February, and receives his returns for the year over a period of a few weeks. In the South Island the programme is generally later by about a month.

At the annual sheep and cattle fairs the intensive graziers and mixed farmers buy their replacement ewes and store lambs, wethers, and cattle for feeding. In the North Island the intensive grazier relies almost entirely on grass for lamb, mutton, and beef production, but in the drier and colder districts of the South Island rape and other fodder crops are required for lamb fattening and turnips for winter feeding. January is the peak month for lamb killings, March for mutton, and May for beef.

In the North Island the Romney is the dominant breed, being eminently suited to the grazing conditions on the surface-sown pastoral farms. The intensive grazier on the plains mates the Southdown ram with Romney ewes from hill-country farms for the production of export lamb: he also fattens store Romney lambs and wethers.

Pastoral conditions in the South Island are less uniform than in the North Island, and require more breeds of sheep. Merinos are grazed on the highest and poorest tussock country, the half-bred and Corriedale on the better tussock country, and Romneys in the higher-rainfall areas. The extensive pastoral farms supply the half-bred, Corriedale, three-quarter-bred, and Romney ewes to the intensive graziers and arable mixed farmers on the plains for breeding fat lambs for export. In addition to the Southdown, English and Border Leicester rams are used for the production of fat lambs for export, particularly where seasonal conditions do not favour early fattening.

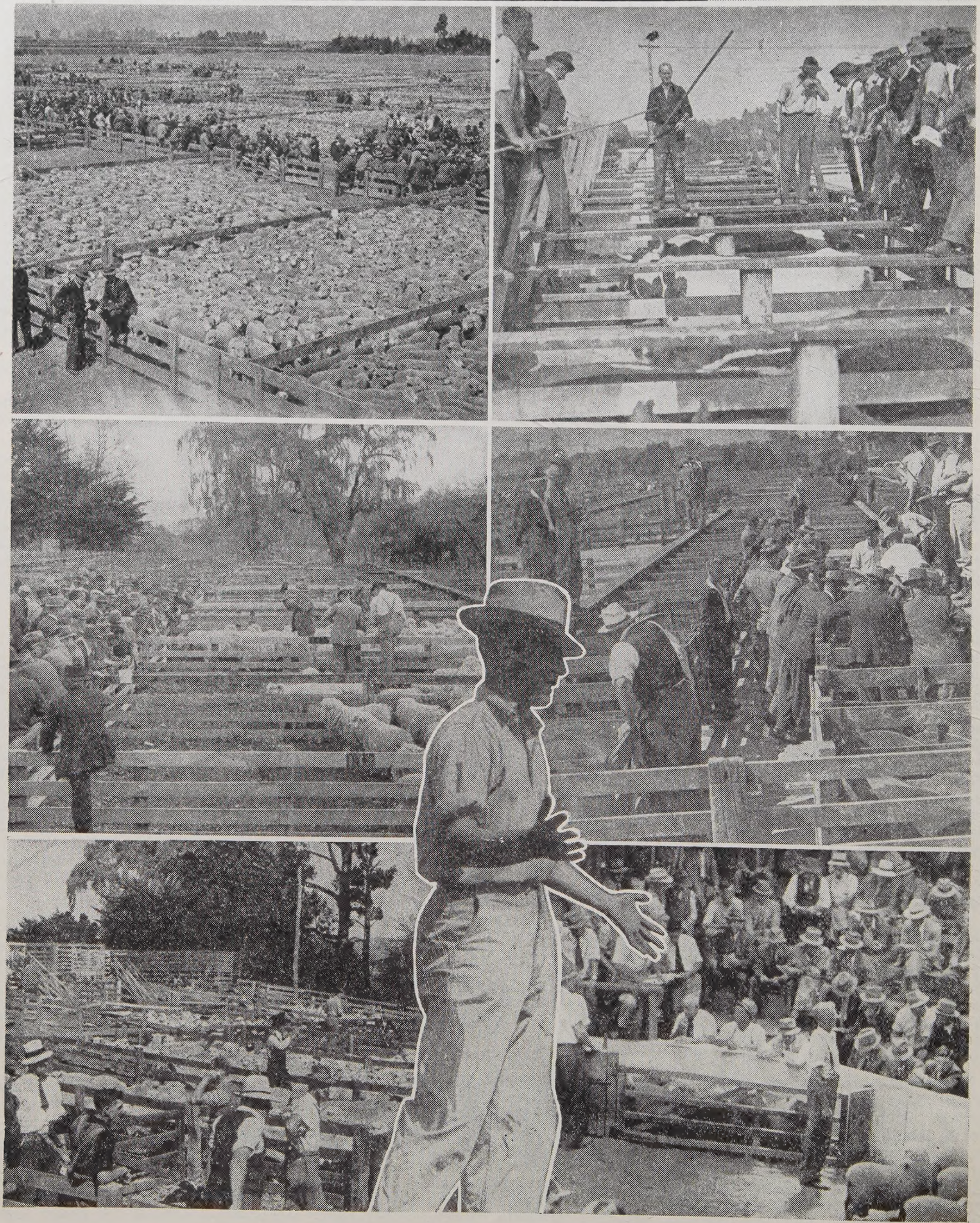
Beef cattle movements follow somewhat similar lines to store sheep movements: the intensive graziers and mixed farmers fatten store cattle from the extensive pastoral farms. Cattle are very important on North Island pastoral farms, where they are essential for proper pasture control and for this reason early maturity is not generally aimed at.

### Distributing Centres

Principal stock centres in New Zealand have their own particular significance in indicating the general trend of the market. Situated close to large towns and catering for extensive local butchery requirements, Westfield, Stortford Lodge, Addington, and Burnside prices reflect general fat stock values. In the Wairarapa and Hawke's Bay sales of station cattle and station sheep figure prominently. Dairy values can be gauged freely from clearing sales in Taranaki, for example, but pig prices show a wide range of fluctuation between various sales, more especially between the South and North Islands, this being also true of fat cattle. Morrinsville and Frankton afford an indication of general conditions in the North Island, drawing cull ewes principally from the Gisborne districts, but also from Hawke's Bay, Taihape, and North Auckland, according to seasonal conditions and consequent market prices in various areas.

The Addington market at Christchurch is unique in that it is a store sheep centre for the whole of the South Island, and in addition receives a substantial number of fat lambs which are competed for under auction by buyers from the export firms. To this market come the fat and store cattle from Southland and North Otago. From the native grasses on

# SALEYARD SCENES



the high country of Otago come considerable numbers of the much sought after cull ewes. The irrigated areas of Central Otago and other high-producing plains areas supply fat sheep. From the Marlborough districts come store sheep, and also store cattle, which are in high demand by Banks Peninsula graziers. The Chatham Islands send their quota of sturdy Romneys, and even the distant areas of South Westland, around the glaciers region, provide fat Herefords. In the autumn yardings of 15,000 ewes, besides thousands of store lambs, are quite the rule and in general Addington sets the levels of South Island store sheep prices.

## *Marketing Agents*

The disposal of stock by auction is a highly-organised system operated by stock and station agents, who provide the necessary facilities and make arrangements for handling the stock, often building their own saleyards where these are not provided by special companies or public authorities. Charges are sometimes made specifically for the use of yards, as in the South Island, or they may be absorbed in general overhead expenses and recouped through commissions, as is more common in the North Island. The scales of charges for selling stock in South Auckland and Canterbury are given in Table LXXVIII and illustrate differences that occur. Saleyard auctioning provides for the public assessment of stock values, and there is thus every chance that market prices depend on supply and demand. In fact a large body of farmers appears at all these sales principally to sound out the market and arrange their farm practice accordingly. The yards also provide a clearing house for information, many a deal being made over the stockyard rails, and general farming interests discussed.

The local agents whose business it is to be in contact with sellers and buyers and to provide the means of meeting their requirements are an integral part of the stock firms. By their extensive connections and their interests in financing stock deals the stock firms actively promote stock movements to the benefit of the community, and secure their profit by commissions and charges for financial accommodation. The particular advantage of operating through a stock firm is that the firm pays the vendor in full within 14 days of sale, after deducting commission, droving, and other charges, and it undertakes the collection of payment from buyers. It is in the firm's interest to secure full values for stock sold and the vendor benefits accordingly.

TABLE LXXVIII—STOCKYARD SELLING CHARGES.

**South Auckland:**

| | Commission. |
|---|---|
| Lambs, fat sheep, and cattle | 4% |
| Store sheep and cattle | 4% |
| Pigs—if £2 or less per head | 5% |
| —if over £2 | 4% |
| —boars and sows | 5% |
| Pedigree stock | 1/- in the guinea |
| Clearing sales, usually | 4% |
| Dairy cattle | 5% |
| Bulls | 5% |
| Horses | 5% |

**Canterbury:**

| | Commission. | Yarding fees per head. |
|---|---|---|
| Lambs, fat sheep, and cattle | 2½% | 1d. 1d. 1/6 |
| Store sheep and cattle | 2½% | 1d. 1/- |
| Pigs | 2½% | 2d. |
| Pedigree stock | 1/- in the guinea | |
| Clearing sales—sheep | 2½% | |
| Other stock, implements, and furniture | 5% | |
| Dairy cattle | 5% | 1/6 |
| Bulls | 5% | 6d. |
| Horses | 5% | |

Other important marketing agents are the dealers. The larger dealers operate mainly from centres where stock has to be driven to a railhead, and distribute either through saleyards in fattening areas, through stock firms, or by private contact with buyers. Large-scale dealers are steadily decreasing in number. There are numerous smaller dealers who may buy in one sale and resell immediately in other stockyards, or who may use their farms as holding paddocks for freshening or improving stock for resale. Forward sales, which are common enough in the North Island, are less so in the South.

## *Store Sheep and Breeding Ewe Markets*

The clearest example of the tie-up between store farms and fattening farms is in the Waikato, where from late January to early March large numbers of Romney ewes and wethers brought from Gisborne high-country districts are eagerly sought by farmers of the Waikato plains for their better-class pastures and easier country. Older ewes, culled from the high country principally for failing teeth mostly at 4 and 5 years, comprise the bulk of the trade. Younger ewes, mostly 2-tooths, culled by the store farmer for failing to measure up to requirements for wool and type, are eminently suitable for fat lamb production.

Large-scale dealers buy cull ewes either on the sheep stations for forward delivery or at the largest high-country ewe fairs, and all sell them at the ewe fairs on the plains, taking the risks of the market and transport. The important operations of these dealers reduce market fluctuations and therefore tend to greater stability, but even so the uncertainties of the ewe market can make or break a dealer in one season. Forward buying of station ewes is a usual practice between Gisborne and the Waikato, and, apart from dealers, this system is generally adopted by large fat lamb graziers who can thereby ensure getting a more consistent and even line of ewes from year to year. The practice is not always to the purchaser's advantage, as the selling season in the Waikato is short and forward calculations of values may be well out of line when too many sheep come on the market at any time.

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standing in the North Island, principally on account of dealers. Substantial numbers of store station sheep and cattle are railed from Wairarapa and Hawke's Bay sheep stations to the Manawatu centres, mainly Feilding, and even as far as the Waikato, depending on seasonal conditions and relative stock values.

At Morrinsville and Frankton, the principal markets for East Coast sheep in the Waikato, about 250,000 station ewes are auctioned in six weeks up to the middle of March. At the same time, all over the country, though particularly in the North Island, there are numerous small and large fairs for ewes, store lambs, and store wethers drawn from the hilly areas surrounding the plains. Here too large dealers commonly buy forward and sell in suitable centres, but farmers specialising in wether fattening on easy rolling country frequently make private deals by arrangement from year to year. While this is also the practice with ewes, a greater proportion is sold by auction.

In January and early February, frequently in conjunction with wether and ewe fairs, there are substantial sales of weaned lambs off the higher country. These find a ready sale among those farmers with suitable surplus growth, any not got away fat in autumn being kept over for sale as wether hoggets or, in the case of ewe lambs, for breeding or for sale as 2-tooth ewes. In the South Island store lambs and store wethers are sold at current weekly stock sales for fattening by the plains farmer on rape and other crops.

The system of sheep fairs is a well-established and widely-accepted practice, enabling buyers to select their particular requirements from a wide range. It gives scope for the exercise of superior stock judgment and business ability, while the vendors are reasonably assured of fair market prices. To a large degree fairs act as the barometer of the industry, the Addington store sheep market in particular exerting a powerful influence on Canterbury and even the whole of the South Island, especially in respect of the finer-woolled sheep.

Annual country ewe fairs assume particular importance. In North Canterbury, for example, the eight principal annual sales account for nearly 150,000 ewes, of which Culverden has yarded up to 35,000 Corriedales and half-breds off the higher country, and Addington markets at least 100,000 ewes annually.

The basis of values for store stock in the open market can be illustrated with wether prices in the North Island. Like store run cattle, wethers have to work for their living in the sense that they are used for cleaning up rough growth and for pasture control in general, being fattened on better pastures, special turnip crops, or suitable surplus growth. Values are therefore subject to variation, according to growth conditions, and this is more the case than with ewes.

In January this year fat wethers were killing out at 65lb. average, due to the good season and the larger percentage of 4-tooths sent to the works. Their value at the works was 32/- average, or about 30/6 at the farm gate. In buying store wethers at the stockyards allowance must be made for transport to the farm and for the return to the farmer. As one expert points out, there is on the credit side an increase in schedule prices due to wool growth over the fattening period amounting to ½d. or more per pound. On this reckoning good store 4-tooth wethers can be bought in January at 28/6, with only 2/- margin below fat prices at the farm gate. If 2-tooth wethers kill out at 56lb., with an average value of 28/- at the works or 26/6 at the farm gate, store values in January should approximate 24/6, and the profit over three months of fattening, including the schedule increases, amounts to 4/6. Experience has shown that in the South Island the necessary margin for fattening store lambs on crops is about 6/-, or a minimum of 6d. net per week.

While pasture growth has its influence on stock prices in general, the price a fat lamb farmer pays for his ewes depends in the main on what he received in the previous season for fat lambs, wool, and cull ewes. The value of the plains ewe too old for

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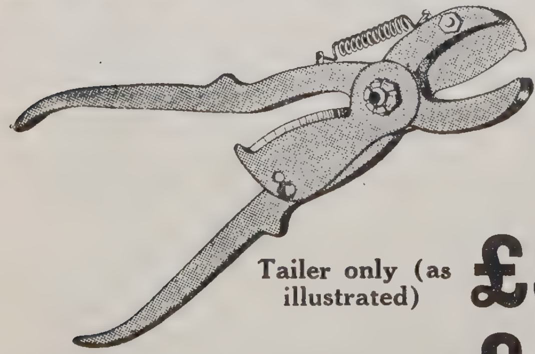

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further lambing and due for the freezing works determines the market value of sound-mouth and 2-tooth ewes to a considerable extent. Fat lamb graziers in the Waikato consider that a 5-year ewe should be bought for the price of a lamb, and a 2-tooth for about a lamb and a half. Recent years have seen a heavy increase in the value of the freezing works ewe. Actually ewe prices, while closely dependent on these returns, fluctuate more widely between good and bad times, and consequently the income of the store sheep farmer fluctuates more widely than that of the fat lamb farmer. The two classes of ewes discussed previously have fairly consistent relative values, 2-tooths being worth on the average just about 40 per cent. more than 5-year-old ewes.

Table LXXIX shows the trend of values in Waikato and Canterbury districts over ten seasons. Sound-mouth ewes are principally 5-year-olds, with some 6-year ewes in the North Island, and, as a rule, 4- and 5-year ewes off the South Island hill country.

TABLE LXXIX—EWE PRICES.

| | Waikato: Ewes: 2-tooth. £ | s. | d. | Waikato: Ewes: Sound-mouth. £ | s. | d. | Canterbury: Ewes: 2-tooth. £ | s. | d. | Canterbury: Ewes: Sound-mouth. £ | s. | d. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1934-35 .. | 1 | 8 | 0 | 1 | 0 | 6 | 1 | 6 | 6 | | 16 | 6 |
| 1935-36 .. | 1 | 11 | 6 | 1 | 3 | 6 | 1 | 14 | 6 | 1 | 5 | 0 |
| 1936-37 .. | 2 | 0 | 6 | 1 | 10 | 6 | 2 | 0 | 0 | 1 | 12 | 0 |
| 1937-38 .. | 1 | 14 | 6 | 1 | 6 | 6 | 1 | 14 | 0 | 1 | 0 | 6 |
| 1938-39 .. | 1 | 4 | 6 | | 16 | 6 | 1 | 5 | 0 | | 10 | 6 |
| 1939-40 .. | 1 | 9 | 0 | 1 | 2 | 6 | 1 | 5 | 6 | | 17 | 6 |
| 1940-41 .. | 1 | 11 | 6 | 1 | 2 | 6 | 1 | 9 | 6 | | 12 | 0 |
| 1941-42 .. | 1 | 9 | 0 | | 19 | 0 | 1 | 9 | 0 | | 12 | 0 |
| 1942-43 .. | 1 | 8 | 6 | 1 | 0 | 6 | 1 | 13 | 6 | 1 | 0 | 0 |
| 1943-44 .. | 1 | 10 | 0 | 1 | 1 | 0 | 1 | 12 | 6 | 1 | 5 | 6 |
| 1944-45 .. | 1 | 12 | 0 | 1 | 4 | 0 | 1 | 17 | 0 | 1 | 9 | 6 |

There has been a tendency recently to reduce the margin between the prices of 2-tooths and sound-mouth ewes because of the demand by the plains farmers for the ewe that will do best for just one lambing. This is due to the favourable prices of lambs compared with other sheep products at the present time. At the last autumn fairs in Canterbury, for example, 2-tooths sold at only 25 per cent. above four-year-old ewes.

## *Ram Fairs*

To meet their ram requirements farmers either patronise the ram fairs or deal direct with breeders. Flock ram fairs may be held in conjunction with ewe fairs in February and March, but the stud ram fairs also reach sizeable proportions. For instance, the turnover at the 1944 Masterton and Feilding stud fairs approached £40,000, and in 1945 the 248 rams sold realised 29,936½ guineas by auction, an average of nearly 121 guineas. The normal run of flock rams can be bought for about 10 guineas or less. The stud ram trade has reached a high degree of specialisation, and premium prices are secured by long-established flocks. From such flocks selections are made of Corriedales and Romneys for export to South America and the United States, and Southdowns to Australia. Even a country as far distant as Manchuria has imported from our studs. As a means of securing a recognition of standards, stud breeding is closely associated with agricultural and pastoral shows. The auctioning of stud sheep serves to establish values in a general way, but private trading or private selling through agents probably accounts for quite as many sales.

A summary of the entries for the Canterbury Flock Ram Fair for March, 1945, is given in Table LXXX and provides an indication of the relative importance of breeds and of values in the area.

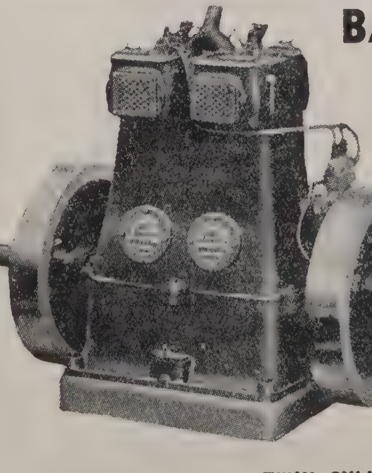
TABLE LXXX—CANTERBURY A. AND P. ASSOCIATION FLOCK RAM FAIR, ADDINGTON, MARCH, 1945.

| Breed. | Entries. | Average Prices. | Comments: |
|---|---|---|---|
| Southdown .. .. | 1,460 | 8½ to 10 gns. | Increasingly popular. |
| English Leicester .. | 474 | 3¼ to 5 gns. | Least in favour. |
| Border Leicester .. | 118 | 6 to 9½ gns. | Revived demand. |
| Southdown x Suffolk .. | 57 | 9½ to 12 gns. | |
| Shropshire .. .. | 10 | | |
| Suffolk .. .. .. | 8 | | |
| Ryeland .. .. .. | 92 | 7 to 9 gns. | Too many marketed. |
| Half-bred .. .. | 222 | 10 to 11 gns. | Keen demand. |
| Corriedale .. .. .. | 873 | 10 gns. | Over supply. |
| Merino .. .. .. | 6 | | |
| Romney .. .. .. | 1,003 | 7 to 9 gns. | Steady sale. Many entries contributed by Southland and North Island. |

## *Marketing Store Run Cattle*

As an adjunct to fat lamb production in the North Island store run cattle are essential for pasture maintenance, but the breeding is left to the high-country stations with the rough grass and hard conditions. The process of marketing is much the same as for breeding ewes, spring and autumn cattle fairs supplying the bulk of the needs. Large dealers again operate either on the stations or at sales in the breeding districts, and organise transport by hoof or rail and disposal through a stock firm. A certain amount of private dealing is done by the larger farmers direct with the stations. Most of these stock are bought as 2-year or 2½-year-old steers and heifers, with a smaller number of 3-year-old or older cattle and some cows, the tendency in recent years being to concentrate on the earlier-maturing stock for the chiller trade.

Whereas the larger ewe fairs offer between 20,000 and 30,000 ewes, up to 2,500 cattle may be penned at the most important fair centres as in Gisborne and the Wairarapa, and the demand of fatteners is such that the margin of profit has shown a steady decrease between store and fat prices in recent seasons. While ewes are commonly auctioned in pens from a truckload up to several hundred in a line, the store cattle are disposed of in lots from about a dozen to fifty or more according to requirements.



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Make preparations for next season's crops now. Grow a quarter of an acre of roots per sow and make provision for an extra acre of grain crop to winter pigs next year.

Make every effort to bring the pigs you have through this winter without loss. Mate all available sows, and aim at increasing the average output per sow from 8 to 10 pigs.

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In the South Island the position is rather different because of the limited cattle country typical of the North Island. As a whole run cattle are not essential for pasture control in the South, where the ewes can take care of most of the rough grass. Cattle from inland stations are fattened for local consumption on the wetter areas, Banks Peninsula being prominent in this respect. There are also forward sales of weaners from Southland and parts of Otago to the warmer bush country, especially the Palmerston district. These cattle are held there to 2½ years or older, and are sold to the plains country for topping off on turnips. During August and September grazing is paid at the rate of 7/6 per head per week, and a heavy fat beast will return £21 to £24 on the local market.

This year in the North Island chiller cattle are weighing heavier than usual, a 3½-year beast killing out close to 750lb., worth £15 at the works, first quality. The average return is therefore about £14 at the farm gate. On this basis 2½-year to 3-year store cattle are worth £11 to £11 15s. according to condition, showing a return of £2 odd to the farmer.

The prices of 2½-year store steers at autumn sales in the Waikato and Poverty Bay over a 10-year period are shown below:—

**TABLE LXXXI—PRICES FOR 2½-YEAR STEERS.**

| Season. | Waikato. £ | s. | d. | Poverty Bay. £ | s. | d. |
|---|---|---|---|---|---|---|
| 1935 .. .. | 4 | 15 | 0 | 4 | 5 | 0 |
| 1936 .. .. | 6 | 15 | 0 | 5 | 10 | 0 |
| 1937 .. .. | 8 | 10 | 0 | Not available | | |
| 1938 .. .. | 7 | 15 | 0 | 8 | 10 | 0 |
| 1939 .. .. | 7 | 15 | 0 | 7 | 5 | 0 |
| 1940 .. .. | 7 | 10 | 0 | 6 | 15 | 0 |
| 1941 .. .. | 8 | 5 | 0 | 7 | 0 | 0 |
| 1942 .. .. | 8 | 15 | 0 | 8 | 15 | 0 |
| 1943 .. .. | 9 | 10 | 0 | 8 | 0 | 0 |
| 1944 .. .. | 9 | 10 | 0 | 9 | 5 | 0 |
| 1945 .. .. | 10 | 10 | 0 | Not available | | |

## *Dairy Cattle Sales*

The requirements of those dairy farmers whose policy is to buy their replacement stock rather than breed it, and the necessities of others who are forced to go to the market to fill the gaps in their herds due to unexpected spring losses from calving troubles and disease, constitute the heavy demand for springing calving cows and heifers at the commencement of the production season. This demand has led to the growth of a sideline enterprise to provide the market with 2-year-old in-calf heifers, and this has proved lucrative in the past few seasons with quality heifers fetching £11 to £14 on the drop, though late calvers or less attractive stock sell at a discount. Dairy cows in milk are normally marketed as surplus to requirements and not as a special trade. Unless some guarantee of soundness can be given by a vendor, a cow in milk or in calf does not always receive favourable attention from buyers.

In other years big dealers brought surplus Taranaki heifers to the Waikato, but such large-scale movements have not been so usual of late. Actually many requirements are met through the operations of local stock agents, who are constantly in close touch with supply and are in a position to vouch for the vendor. An important market for dairy stock in the principal production areas is the end-of-season clearing sale following change of farm ownership, or management, or of sharemilkers. This auctioning of whole herds never fails to attract a large bench of buyers. With a herd sold on a farm goes some assurance of the standard of feeding and management, while factory returns give a definite guide to productive capacity. These points are usually lacking in stockyard sales, in which the vendor's name may not appear. There is also a certain amount of traffic by dealers in dairy cows, but it is not necessarily favourable to the purchaser.

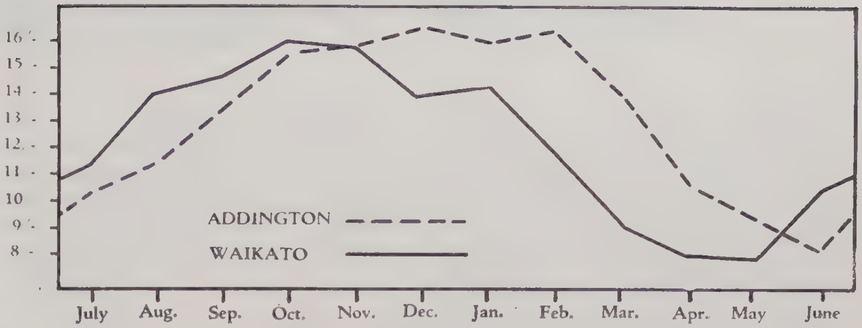
In most stockyards in dairying areas there is a special dairy section to cater for the sale by auction, but quite a large trade is done privately or through the agents of the stock firms. In recent years stock prices have advanced considerably and Table LXXXII indicates the trend since 1934-35, giving quotations for springing heifers in June to September. In the Waikato those graziers who are on easy, topdressed country are responsible for supplying a large percentage of the in-calf heifer trade for the local dairy market. These men buy complete lines of yearlings from the small farmer whose country is too expensive to hold them through. There is a much better financial return from this class of business than in handling store cattle for fattening.

### TABLE LXXXII—PRICES FOR SPRINGING HEIFERS, JUNE TO SEPTEMBER.

| Season. | | Waikato. | Rangitikei-Manawatu. |
|---|---|---|---|
| 1934-35 | .. | 6 5 0 | 5 10 0 |
| 1935-36 | .. | 8 10 0 | 6 15 0 |
| 1936-37 | .. | 10 0 0 | 8 0 0 |
| 1937-38 | .. | 10 15 0 | 9 10 0 |
| 1938-39 | .. | 10 15 0 | 9 15 0 |
| 1939-40 | .. | 12 15 0 | 10 0 0 |
| 1940-41 | .. | 12 0 0 | 12 15 0 |
| 1941-42 | .. | 12 0 0 | 10 0 0 |
| 1942-43 | .. | 11 15 0 | 9 15 0 |
| 1943-44 | .. | 14 0 0 | 11 10 0 |

The extensive trade in pedigree dairy cattle emphasises the demand for high-producing stock, prices paid being in accordance with the record of butterfat backing and the standing of the breeder. In the main dairy centres annual sales dispose of a fair proportion of stud stock, but the larger breeders may hold public sales on their properties. Private selling assumes substantial proportions, though the public auction sales very largely set the values. Bulls sold are usually 2 years old or yearlings, and the female stock comprises mainly in-calf heifers, and in most cases there is a written guarantee or an unwritten understanding that the vendor will replace any animal proving defective. There has also developed a steadily-increasing export trade in top-quality stud cattle of both beef and dairy breeds to Argentina, Australia, and even China.

AVERAGE WEANER PRICES 1934-39.



Arising from the culls of the dairy herds is the boner cow trade, which accounts for an export of some 20,000 tons of canned meat and finds a ready market with a section of the English consumers. The boner cow market is organised on a basis of schedule prices offered by the meat export companies, at present 23/- per 100lb. carcass weight. There is a steady stream of cull cows coming to the markets throughout the dairy season, but larger numbers appear from the end of April as the herds are dried off. Collecting arrangements have been worked out by freezing companies in some districts, but, if marketed in the stockyards, as is more common, these cows are competed for by freezing company buyers and occasionally local butchers on the basis of estimated carcass weights. On the existing schedule a dairyman can get a return of round about £4 10s. for his Jersey culls and up to £9 for Shorthorns, and this has a direct bearing on dairy cow prices. Cull bulls for canning enter the market on the same basis and fetch attractive prices.

## *Store Pig and Sow Sales*

The store pig market is almost wholly in the stockyards, and prices reflect fairly accurately the state of supply and demand. Store pig sales in April to June illustrate the use or abuse of the stock market to quit the surplus autumn weaners that are the bugbear of a pig industry still almost completely depending on skim-milk. At that time the yards are full of unwanted weaners and unfinished pigs, and there are few buyers. On the other hand, from September to November a healthy trade is done in store pigs. The diagram above showing weaner prices averaged over five pre-war seasons illustrates the position and incidentally shows how the Canterbury season lags behind the Waikato.

There is also a keen trade for unfinished baconers suitable for fattening by buttermilk contractors, about £1 difference between the value of the bought pig and the final product being a useful margin to work on. The prices of large stores given in Table LXXXIII are averaged over the months of December to February, and reflect the trend of pig values over the period:—

### TABLE LXXXIII—PRICES FOR LARGE STORE PIGS.

| Season. | | Waikato. | Canterbury. |
|---|---|---|---|
| 1934-35 | .. | 1 4 0 | 1 3 0 |
| 1935-36 | .. | 1 7 0 | 1 3 0 |
| 1936-37 | .. | 1 8 0 | 1 7 0 |
| 1937-38 | .. | 1 13 0 | 1 10 0 |
| 1938-39 | .. | 1 9 0 | 1 13 0 |
| 1939-40 | .. | 1 10 0 | 1 16 0 |
| 1940-41 | .. | 1 12 0 | 1 18 0 |
| 1941-42 | .. | 1 4 0 | 1 9 0 |
| 1942-43 | .. | 2 1 0 | 2 4 0 |
| 1943-44 | .. | 1 14 0 | 1 19 0 |

Most breeding stock is sold privately, except that in the main dairy centres there are special annual sales. Principal breeders also have annual auctions on their premises, and the pedigree pig business, in common with that of sheep and cattle, is closely associated with agricultural and pastoral shows. The few grade sows and boars sold in the stockyards often meet with an indifferent reception.

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## Internal Parasites of Livestock

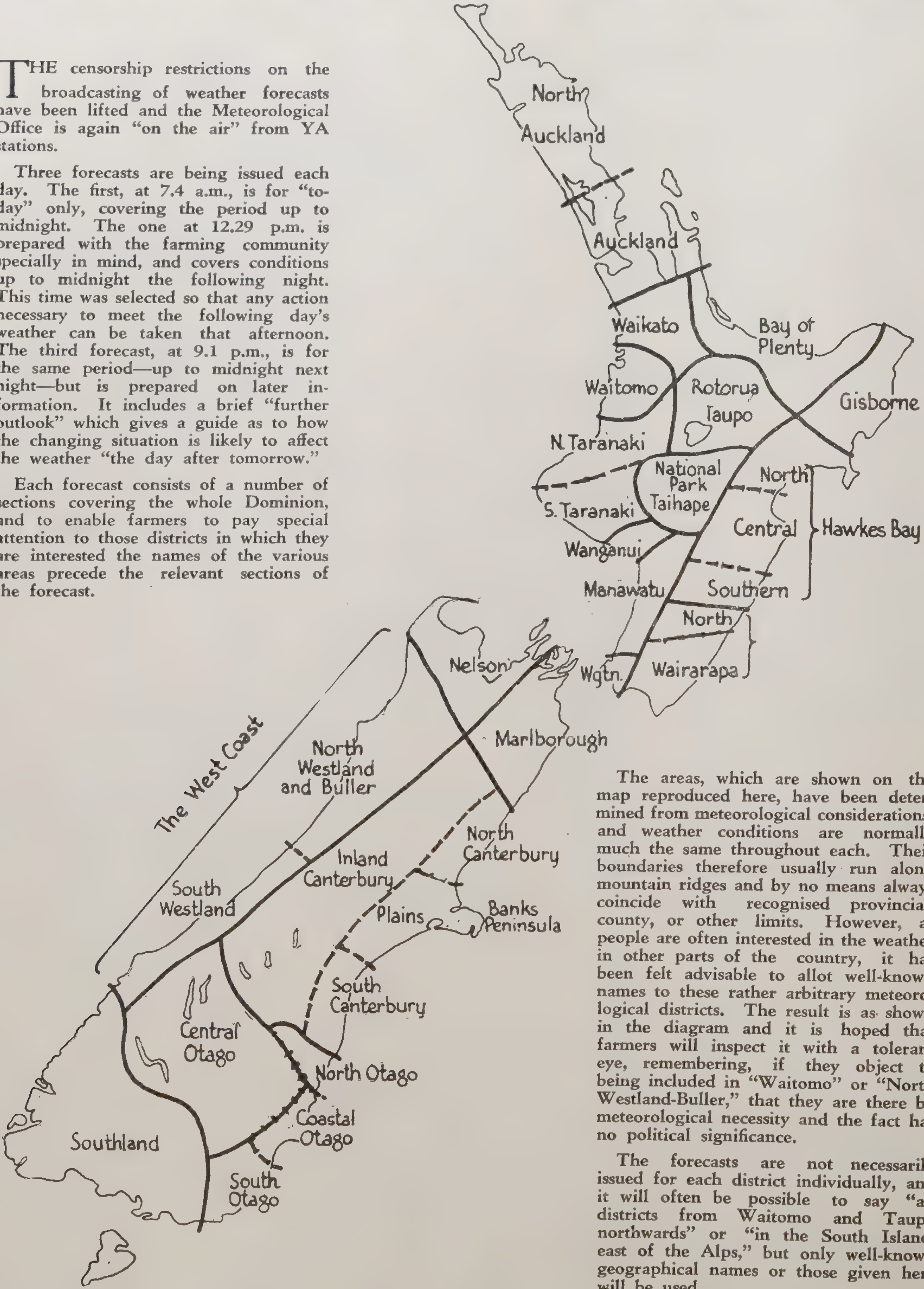
CONSIDERABLE economic loss among livestock occurs annually because of the ravages of internal parasites, and it is the duty of every farmer to do his utmost to minimise these losses. The Department's **free** bulletin (No. 189) deals fully with the advantages of phenothiazine in the control of internal parasites. Its effectiveness against the various types of parasites, the methods of administration and the dose rates are fully discussed in this bulletin, which may be obtained from the Department of Agriculture at Auckland, Wellington, Christchurch and Dunedin.

# Dominion Weather Forecasts

THE censorship restrictions on the broadcasting of weather forecasts have been lifted and the Meteorological Office is again "on the air" from YA stations.

Three forecasts are being issued each day. The first, at 7.4 a.m., is for "today" only, covering the period up to midnight. The one at 12.29 p.m. is prepared with the farming community specially in mind, and covers conditions up to midnight the following night. This time was selected so that any action necessary to meet the following day's weather can be taken that afternoon. The third forecast, at 9.1 p.m., is for the same period—up to midnight next night—but is prepared on later information. It includes a brief "further outlook" which gives a guide as to how the changing situation is likely to affect the weather "the day after tomorrow."

Each forecast consists of a number of sections covering the whole Dominion, and to enable farmers to pay special attention to those districts in which they are interested the names of the various areas precede the relevant sections of the forecast.



The areas, which are shown on the map reproduced here, have been determined from meteorological considerations, and weather conditions are normally much the same throughout each. Their boundaries therefore usually run along mountain ridges and by no means always coincide with recognised provincial, county, or other limits. However, as people are often interested in the weather in other parts of the country, it has been felt advisable to allot well-known names to these rather arbitrary meteorological districts. The result is as shown in the diagram and it is hoped that farmers will inspect it with a tolerant eye, remembering, if they object to being included in "Waitomo" or "North Westland-Buller," that they are there by meteorological necessity and the fact has no political significance.

The forecasts are not necessarily issued for each district individually, and it will often be possible to say "all districts from Waitomo and Taupo northwards" or "in the South Island, east of the Alps," but only well-known geographical names or those given here will be used.

# British Farming in Wartime

THE writer of this article was one of the six New Zealand agriculturists seconded to the British Ministry of Agriculture to assist with the drive for increased production from the farmlands of Great Britain. During the period he was in Great Britain Mr. Robinson was associated with the Monmouthshire War Agricultural Executive Committee, and this article gives some idea of the field over which this, and similar other committees, operated, and the results achieved.

*By*

G. S. ROBINSON,
*Instructor in Agriculture,*
*Masterton.*

WHEN they read of the amazing increases in production that the British farmer has accomplished during the war many New Zealanders may have wondered just how this has been done. To have stepped up the supply of home-grown foodstuffs from one-third to two-thirds of Great Britain's requirements is a remarkable feat. We have only to consider what work would be involved if New Zealand were to double her output of primary products in the short period of four years to realise this. The difficulty in such a campaign is always to spread the burden evenly over the whole of those concerned, because, despite the natural feelings of patriotism which automatically make us work harder for what may possibly result in smaller personal but greater national gain, we cannot do our best if we realise that a proportion of the community is not pulling its weight.

Before the war the British Ministry of Agriculture had plans prepared, and immediately war broke out was able to put into practice a policy for increasing production from the land. The whole basis of this was that more food both for human and animal consumption can be produced from crops than from permanent pasture. So a subsidy of £2 per acre was given to encourage farmers to plough up old pasture. This subsidy has been maintained right up to the present time, but with the outbreak of war it was necessary to employ more direct methods than subsidies alone in order to produce the food required.

Committees were set up in each county in the country and given the responsibility for getting the most out of agriculture within their territory. The Ministry of Agriculture gave each War Agricultural Executive Committee a quota of tillage acreage to attain, due consideration being given to such factors as climate and suitability of the soil for cropping purposes. Whole milk production was made the first priority in every county. Many dairy farmers were inclined to think that with the cessation of importation of feeding stuffs which had formed the backbone of feeding for milk production they would not be able to maintain their yields at anything like their pre-war standards, but advice was given on cropping for milk production, and farmers with dairy herds were instructed to make certain that they grew sufficient crops for their cows before they considered growing cash crops such as wheat or barley, which were in the next order of priority.

Monmouthshire, which is situated between Wales and England in the south and borders the Bristol Channel, is one of the smallest counties in the country. A considerable portion is in the South Wales coalfield area, and therefore of little use agriculturally. The county as a whole cannot be considered an ideal arable area, and prior to the war only 10,000 acres were under the plough annually, but in 1944 73,000 acres were cultivated—a really great increase. During the same time the number of cattle increased slightly, but the number of sheep showed a considerable reduction. With nearly 30,000 acres producing crops for direct human consumption, viz., wheat and potatoes, this is understandable.

## *Organisation of County Committee*

In order to spread the burden evenly over all farmers in the county, it was decided that a survey should be made of every farm in order to ascertain first of all what ploughable acreage was available. A district officer was appointed for approximately every 200 farmers. In most cases he was a retired farmer living in the district in which he worked. In the survey every paddock on every farm was tabulated—the condition of the pasture, its need or otherwise for drainage, and its suitability for ploughing were all noted. The ploughable acreage for each farm and also for the county as a whole was worked out when the survey was completed. The Ministry of Agriculture asked for 63,000 acres to be ploughed in Monmouthshire in 1942, and, with the county total of ploughable land standing at approximately 160,000 acres, it was necessary for each farmer to have 40 per cent. of his ploughable land under tillage. The district officers therefore went to each farmer and discussed with him the most suitable land for cropping, and made out a schedule of the crops to be planted.

**By 1944 45 per cent. of the ploughable land was actually being cultivated. When it is considered that the majority of the farms were purely grassland before the war and that many of the farmers themselves had had no experience of ploughing, the resulting yields have shown the industry and the keenness which have been displayed.**

**CREATE MORE RAILWAY WAGONS**

**Freighters can do so by Speeding Turnround**

It may seem unimportant to you if one wagon out of thousands is kept waiting needlessly for a few hours until you are ready to load or unload it . . . But this is happening every day, in hundreds of places throughout the country. *Think what it means in total wagon idleness. Think how it retards transportation.* If, instead of holding wagons back, every individual user would speed their clearance by even ten per cent., the equivalent of hundreds of extra wagons would be created at once.

**Not One Wagon Can Afford To Loiter**

1. Over 60 bushels of wheat per acre grown on land not previously ploughed in living memory.
2. Pedigree cocksfoot sown in 21in. drills for seed production yielded over 5cwt. per acre of machine-dressed seed. Photo taken in late spring.
3. Parkland that has been ploughed. The foreground has been cropped and the background reseeded to grass.
4. A large potato clamp.
5. Typical English parkland in its natural state.

There has been some grumbling, and undoubtedly the task has been a strenuous one with shortage of labour and machinery, but underneath it the British spirit has prevailed, as it has with the townspeople. A joke about the number of forms he has to fill in is more common than a dissatisfied comment on the amount of work he has to do.

The district officers have also become more or less advisory in much of their work too, although the bulk of this work has been done by specialists. Thus the staff of each committee has included advisory officers dealing with cropping, grassland, animal husbandry, manuring, horticulture, drainage, and control of pests.

## *The Drainage Problem*

One of the biggest problems in the ploughing-up campaign has been drainage. The Ministry recognised this from the start and granted a 50 per cent. rebate on all drainage work done during the war. Farmers have been quick to take advantage of this, but unfortunately the labour shortage has meant that only a small percentage of the necessary work has so far been done. Farmers have generally preferred to do small jobs to make individual paddocks cultivatable, rather than embark on big schemes. The latter have been left to the committee, which in Monmouthshire had eight excavators working on the flat alluvial land bordering the Severn Estuary. Here they were able to clean out ditches that had been neglected for upwards of 50 years. This area of some 23,000 acres of potentially high-producing land had in the main been allowed to slide back to very low-grade pasture capable of carrying only a fraction of the stock that it should. Drainage was the first essential in the improvement of it. The worst of it—mainly rushes—needed ploughing and reseeding to bring it back to good pasture. Much of the remainder has been ploughed and cropped and will later be reseeded, while better pasture management on the unploughed grassland is slowly improving it too.

## *Long-term Policy*

The Ministry's long-term policy for British agriculture has been to extend throughout the country the system of short-rotation farming, or ley farming as they call it. The main platform of this is that the plough should be taken right round the ploughable land of the farm. On many farms in the past it has been the practice to have the permanent grassland in one "watertight compartment" and the arable land in another. The result in many cases has been poor permanent grassland on the one hand and worn-out arable on the other, but during the war permanent grass when ploughed has given good crops, while the old arable land, if carefully laid down to grass, has produced far more fodder than the permanent pastures could. The big practical difficulties in putting this system into operation on many farms have been, first, that water has not been reticulated in many cases to the paddocks normally under crop, so that when put down to grass it has not been possible to graze them efficiently. The Government has, however, given a subsidy of 50 per cent. of the cost of labour and materials to encourage the provision of better water supplies.

The second practical difficulty has been fencing. Stock were seldom on the old arable block, as the roots were generally carted off and fed elsewhere and the one-year ley which came in the rotation about once in four years was normally cut for hay. Thus the arable area was often run in one block, the ring fence only being in good order. When part of this was put down to grass for a number of years a considerable amount of fencing was necessary before it could be properly managed and grazed.

## *Mechanisation and Labour*

In Monmouthshire, with its 4,400 farmers with a total ploughable area of approximately 160,000 acres, it is apparent that there are a large number of small farms. In pre-war days no ploughing was done on these, but under the new regulations everyone had to plough something, and where this area was under 20 acres purchase of implements and equipment was not warranted. There were very few agricultural contractors as we know them in New Zealand. The committee realised that if they were to attain their acreage quota, they would have to assist the many smaller farmers, and by 1944 they had become very large contractors, running in the region of 150 tractors and the necessary cultivating implements. Even so, they could not tackle all the work that farmers wished them to do, partly because machinery was slow in coming to hand, partly because the only labour they could employ was unskilled and had to be trained before it was anything like efficient. The Women's Land Army was a very valuable asset in this connection, and a very big proportion of the tillage and also the repair and maintenance of machinery has been done by them.

The committee was also given power to take possession of farms and land that were not being efficiently farmed. This fell into two categories. In the first place, if a farmer was farming far below standard and no effort was being made to improve the position, but the farm itself could be farmed economically by a good farmer, the committee would take possession and re-let to a suitable man. If, however, the land was in a derelict state, with hedges overgrown, poor pastures, dirty arable, and buildings in a state of disrepair

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—in short, where no cash return could be expected for some time and without considerable capital expenditure—the committee would take possession and farm the land itself. The aim in most counties was to bring these farms into such a condition that individual farmers could once more take over and farm them economically at a later date.

### *Revolution in Farming*

**From the foregoing and from Press reports it can be seen that farming at Home has undergone a revolution in the war years. Despite the fact that it has always been the biggest single industry of Great Britain, farming between the two wars was treated as the cinderella and received no encouragement. The need for a strong and virile agriculture has been borne out by the experience of the last six years. Farmers in Britain now feel that they are once again an important and vital section of the community, and it is to be hoped that they will retain that position.**

Provided that the post-war international distribution of agricultural products is on a rational basis, as it promises to be, there should be no competition for markets between New Zealand and British farmers. We can produce meat, butter, and cheese at costs that cannot be equalled by Britain. They for their part have an enormous market for milk, cream, fruit, and vegetables, which even during the war they have not been able to satisfy.

It has been a great privilege to work with the farming community of a small part of Britain, and it should be realised by all that the part they played in saving the British Empire during the dark days of the war was second only to that of the "glorious few."

◆

## Some Formulae for Durable Whitewashes

THE following are some approved formulae for preparing whitewashes for specific uses about the farm:—

**Whitewash No. 1** (for sheds, etc.).—Carefully slake half a bushel (38lb.) of good quicklime; strain the paste, while still thick, through wire fly screen, and add it to a solution made by dissolving 15lb. of common salt in 7½ gallons of water, mixing thoroughly. Thin with more water.

**Whitewash No. 2** (for sheds, etc.).—Carefully slake half a bushel (38lb.) of good quicklime; strain the paste, while still thick, through wire fly screen, and add about 4 gallons of hot water. While stirring vigorously pour into the lime mixture a solution made by first dissolving 12lb. of salt and 6oz. of alum in about 4 gallons of hot water and then adding 1 quart of molasses. Thin with water.

**Whitewash No. 3** (for high-grade work).—(a) Carefully slake half a bushel (38lb.) of good quicklime; strain the paste, while still thick, through wire fly screen, add about 4 gallons of water, allow to cool. (b) Dissolve 3lb. of borax (better, trisodium phosphate) in about 3 gallons of skim-milk (better, in 1 gallon of water, which is afterwards added to 5lb. of casein previously softened for two hours in 2 gallons of hot water). (c) Dissolve 3 pints of formaldehyde in about 3 gallons of water.

When the paste (a) and the milk (or casein solution) (b) are thoroughly cool, slowly add the milk (or casein solution) (b) to the lime (a) stirring constantly. Just before using slowly add the formaldehyde solution (c) to the batch, stirring constantly and vigorously. Adding the formaldehyde too rapidly may cause the casein to jell, thus spoiling the mixture.

**Caution.**—If all of this mixture cannot be used in one day, use only a half or third, or other fractional part of each of the three parts (a), (b), and (c), and mix the rest as desired, since a fresh solution each day gives better results.

In all of these directions one sack (50lb.) of hydrated lime, which has been well protected from the air, can be used in the place of freshly-slaked lime. In No. 1 the hydrated lime can be added directly to the salt solution; in Nos. 2 and 3 it should first be made into a paste by mixing it thoroughly with about 7 gallons of water.

**Whitewash No. 4** (disinfectant whitewash).—For a mild disinfectant or insecticidal whitewash add a quart of crude carbolic acid to the whitewash obtained by slaking half a bushel (38lb.) of quicklime, or by mixing a sack (50lb.) of good hydrated lime with water.

For strong germicidal whitewash add 2 quarts of crude carbolic acid to the whitewash.

**Whitewash No. 5** (disinfectant whitewash, small quantity).—Dilute 1½ quarts of commercial lime sulphur with about 3 gallons of water and add 3 teaspoonfuls of common salt, previously dissolved in a pint of water. To this solution add, while stirring constantly, a lime cream made by mixing a quart of good hydrated lime with water (or by slaking about 2½lb. of fresh quicklime and straining through wire fly screen).

**General Suggestions.**—In using quick or burnt limestone care must be exercised in adding the water if good results are to be attained. Add the water a little at a time to the lime in a clean wooden pail, keg, or barrel. When slaking is well started add more water gradually to replace that lost in the slaking process. If not enough water is added, part of the lime will become granular. On the other hand, if too much water is added at one time, it may retard or "quench" the slaking process. After the lime is completely slaked add enough water to make a thick paste, cover the container, and allow to stand for several hours or overnight.

◆

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# Cape Gooseberry Culture

**THE cape gooseberry *(Physalis Peruviana)* is grown in few districts in New Zealand, though it should do well in any district where tomatoes are successfully grown. At present the main area devoted to the commercial culture of cape gooseberries is located at Motueka in the Nelson district, where approximately 70 acres are grown annually for market and factory. Cape gooseberries are becoming increasingly popular as a dessert fruit and for jams and preserves.**

*By*

**J. H. WATT,**
*Fruit Inspector,*
*Christchurch.*

THE production of cape gooseberries is not a highly-specialised business. The plants will grow on relatively poor soils; plantings may be established at low cost and come into production the first year. The plant is a perennial of bushy habit, which is usually cropped for two years and then ploughed out. It is not economical to carry on beyond the second crop, because of the losses of plants through root-rot and the deterioration in quality and weight of the crop.

Some growers prefer to treat the plant as an annual, because a better sample of fruit is secured in the first year and often the crop is heavier. A saving is effected in ploughing over the whole area, preparing it for replanting, and purchasing new plants, as against inter-row ploughing, hand hoeing, and weeding the old beds. Plants are readily grown and not expensive to produce. The production from a good plantation ranges from 30cwt. to 50cwt. per acre depending upon the length of season for harvesting and the absence of heavy frosts to damage the plants severely.

## *Location*

Cape gooseberry culture should be confined to districts with a relatively cold winter and a long, warm summer, with fairly abundant rainfall in the spring and early summer. A dry autumn, however, is necessary to secure a maximum harvest. A cold winter keeps the plants dormant until spring, so that damage to young shoots from late frosts is minimised. The spring rains encourage vigorous growth in the plants up to fruit maturity, and the dry autumn gives rapid ripening, so that the maximum amount of fruit is harvested before the early frosts destroy the fruit and plants.

Although the berries will normally keep in good condition for a week to 10 days after picking, the plantings should be near a good market to avoid delays in transit.

## *Site*

These are the main factors to be considered when selecting a site: The soil should be a suitable type with adequate moisture supply, and free from early and severe late frosts. Light early frosts are an advantage in that the maturing of the crop is assisted by a slight check to the plants and by a reduction in the heavy foliage.

Cape gooseberries succeed in a wide range of soil types from gravelly to heavy loams, provided drainage is good and the soil moisture reasonably maintained during the summer months. A relatively poor soil is most suitable, provided a good spring and early summer growth can be obtained up to the time the fruit is nearly matured. Heavy soils are usually unsuitable owing to insufficient soil drainage. Rich loams give excessive growth, and this retards fruit ripening, and results in the likelihood of loss through frost damage in the autumn. Where natural shelter is insufficient shelter belts should be provided.

## *Preparation of the Soil*

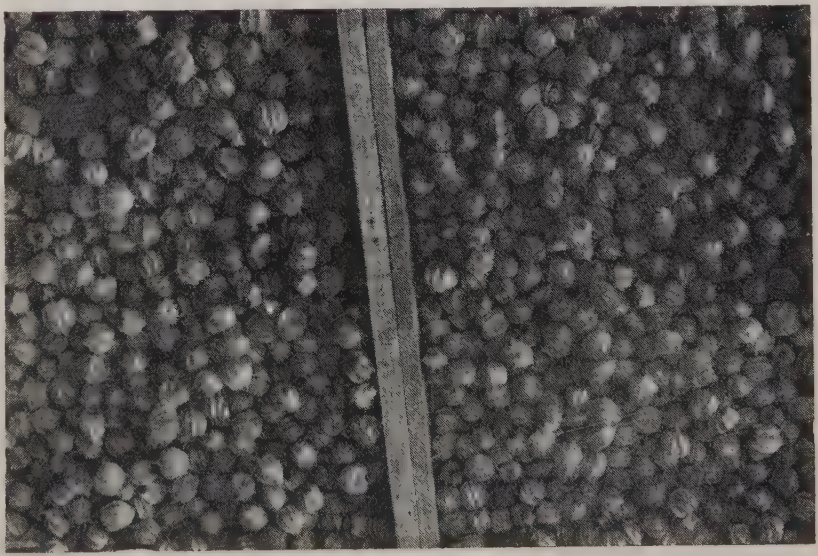
As the cape gooseberry is essentially a surface-rooting plant, deep cultivation should be avoided after the plants become established. The ground should be well cultivated before planting to eliminate as many weeds as possible, and to obtain good planting conditions for the young plants.

## *Raising the Plants*

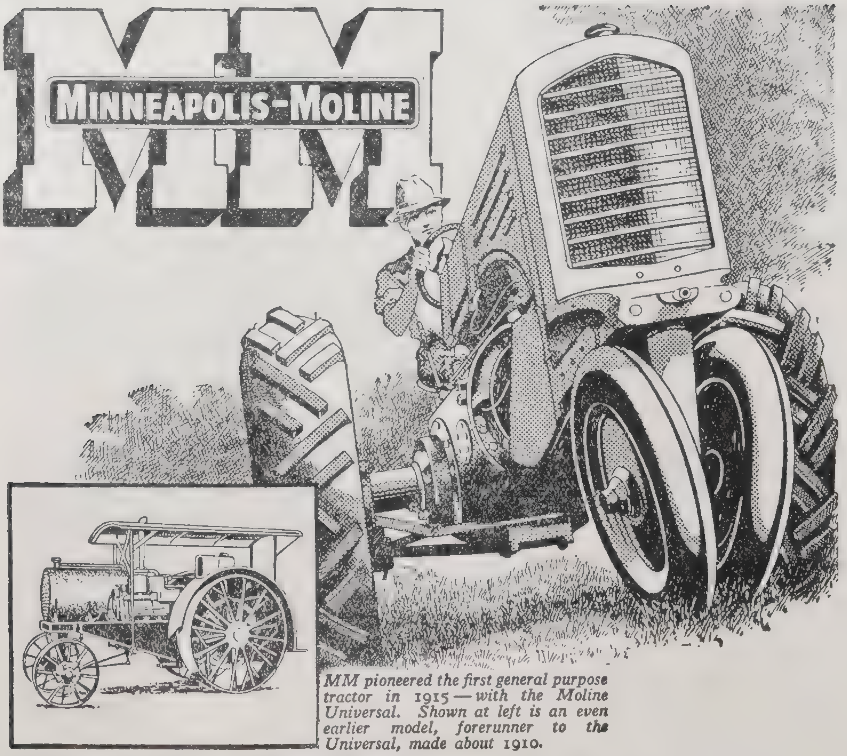
Seedlings are raised in the same way as tomato plants. The seed is sown in trays, and when the seedlings have attained sufficient size they are pricked out into boxes with 2in. between rows and 1in. between plants. When these plants have reached the height of about 6in. they should be hardened off in cold frames for a period of 1 to 2 weeks before planting out in the field.

## *Planting*

The field planting should be carried out in early spring as soon as the danger of frosts is over—usually about mid-October to mid-November in the Motueka area. For most efficient working of the field and the proper development of the plants they should be spaced 6ft. by 5ft. to allow the maximum use of horse or mechanical implements, and thus reduce hand work. In planting, the field should be marked out in rows, and the cape gooseberries planted with a trowel at the required spacing. No staking is



A good even line of cape gooseberries.



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required. In the home garden a warm, sheltered position should be selected in which to set out the plants. They should be set 5ft. apart.

### *Cultivation*

After planting the cultivation must be shallow, as the plants are surface rooting. As the roots spread the cultivated area between the rows will require to be narrowed so as to avoid damage to the fibrous roots. The plantings should be cultivated with a horse grubber or spring-tooth cultivator every week or so until the growth of the plants prevents further operations. An occasional light working of the ground round the plants with a drag fork to keep down weed growth and maintain soil moisture is essential.

Cultivation after harvesting the first year's crop consists of shallow ploughing on to the plants to cover them as a protection against frost damage, and also to give surface drainage to the centre of the lands between the rows, thus reducing loss of plants through root-rot.

In the following spring the area should again be ploughed, this time by ploughing "off" the plants. This is followed by hand hoeing and clearing around the old crowns before they shoot.

### *Manuring*

At the time of planting, or shortly after, a dressing of 2 to 3cwt. per acre of blood and bone and superphosphate in equal parts should be worked into the soil around the plants. This gives the plants a quick start to growth, which is very necessary, as they are apt to stagnate, causing a consequent reduction of crop. When necessary a further similar dressing some 3 or 4 weeks later will help to maintain this growth until the fruit matures. It is then desirable to allow the plants to check quickly in the dry weather to encourage quick ripening and allow the maximum crop to be harvested before autumn frosts occur.

### *Pruning*

Some growers after harvesting the crop follow the practice of cutting off the bushes about 6in. above the ground, and then covering the stumps by ploughing soil on to them. The tops are gathered and burnt. Little, if any, pruning, however, is practised in commercial growing, as there is no real need to go to this trouble or expense. The plants die down and stalks become brittle and can be knocked off the crown when the plants are being cleaned around. This plant refuse soon breaks up during cultivation and becomes incorporated in the soil and assists in keeping it open and in better physical condition. This method minimises the loss which fre-

An early-maturing, healthy, and vigorous crop.

quently occurs through moisture entering the hollow stems and setting up decay.

## *Harvesting*

The fruit ripens in the autumn. The berries should be harvested as the husks change from green to light brown colour; the berry also is changing colour at this stage. Frequent pickings should be made to ensure that the fruit reaches the market in the best possible condition. An average picker will harvest up to 1cwt. of berries per 8-hour day from a crop of 30cwt. to 40cwt. per acre. The berries must not be packed for transport unless they are thoroughly dry, as damp husks will become mouldy and cause damage to the fruit. Where it is necessary to commence picking before the husks are dry the berries should be laid out in a single layer to dry before packing. For sale to a factory for processing it is usual to husk the berries prior to delivery. This is tedious work, which may be made considerably easier by the use of a long bin made of sacking which has been built with a gradual slope to one end. The cape gooseberries are tipped into this shallow bin, the operators stand on each side, and as the berries are husked they roll down the bin and into a box at the end without further handling. When husking is undertaken it is usual to do this work as the first job in the morning, husking all the previous day's picking. This arrangement allows for the plants to dry before starting the day's picking. Usually at this time of the year plants are very wet with dew, and the picking of wet berries is not advised.

## *Pests and Diseases*

Up to the present there have been no economically important pests or diseases affecting the production of cape gooseberries.

**Root-rot** causes considerable loss in some plantations where the water-table is high or the drainage is poor. In heavy soils it is often not practicable to grow a second crop without replanting.

**Minor stem borer** enters the young laterals and destroys them, and thus reduces the crop.

**Collar rot** (*Sclerotinia sclerotiorum*) causes considerable losses in plantations where the water-table is high or drainage poor. In heavy soils it is often not possible to grow a second crop without replanting. There is no control beyond improving soil conditions for future plantings.

**Stem borer** enters the young laterals and destroys them, and reduces the crop. This may be identical with the tomato stem borer. Control: Spray the young growths with lead arsenate (powder) 3lb. to each 100 gallons water.

**Red spider:** During the early part of the growing season periods of dry weather are conducive to attacks by red spider, which devitalise the plants. Later rains or cold weather will check these pests, but where attacks are severe it may be necessary to adopt control measures. Control: Spray with 1 per cent. summer oil and repeat in 14 to 18 days. Good pressure is necessary to wet the pest, as it is protected by webbing.

**Thrips** are not usually regarded as causing economic damage, but in cases of severe attacks the plants may be seriously devitalised. Control: Spray with nicotine sulphate 1-600, plus 1 per cent. summer oil, soon after the first signs of damage, and repeat in 10 days' time.

**Mosaic:** Cape gooseberries are susceptible to tobacco mosaic, but to date this has not caused serious losses in the field. Control consists of rogueing affected plants to reduce the possibility of serious infection.

Cape gooseberry growers should consult the orchard instructor for the district regarding identification of diseases in their plantings, and for advice as to the control measures to be adopted.

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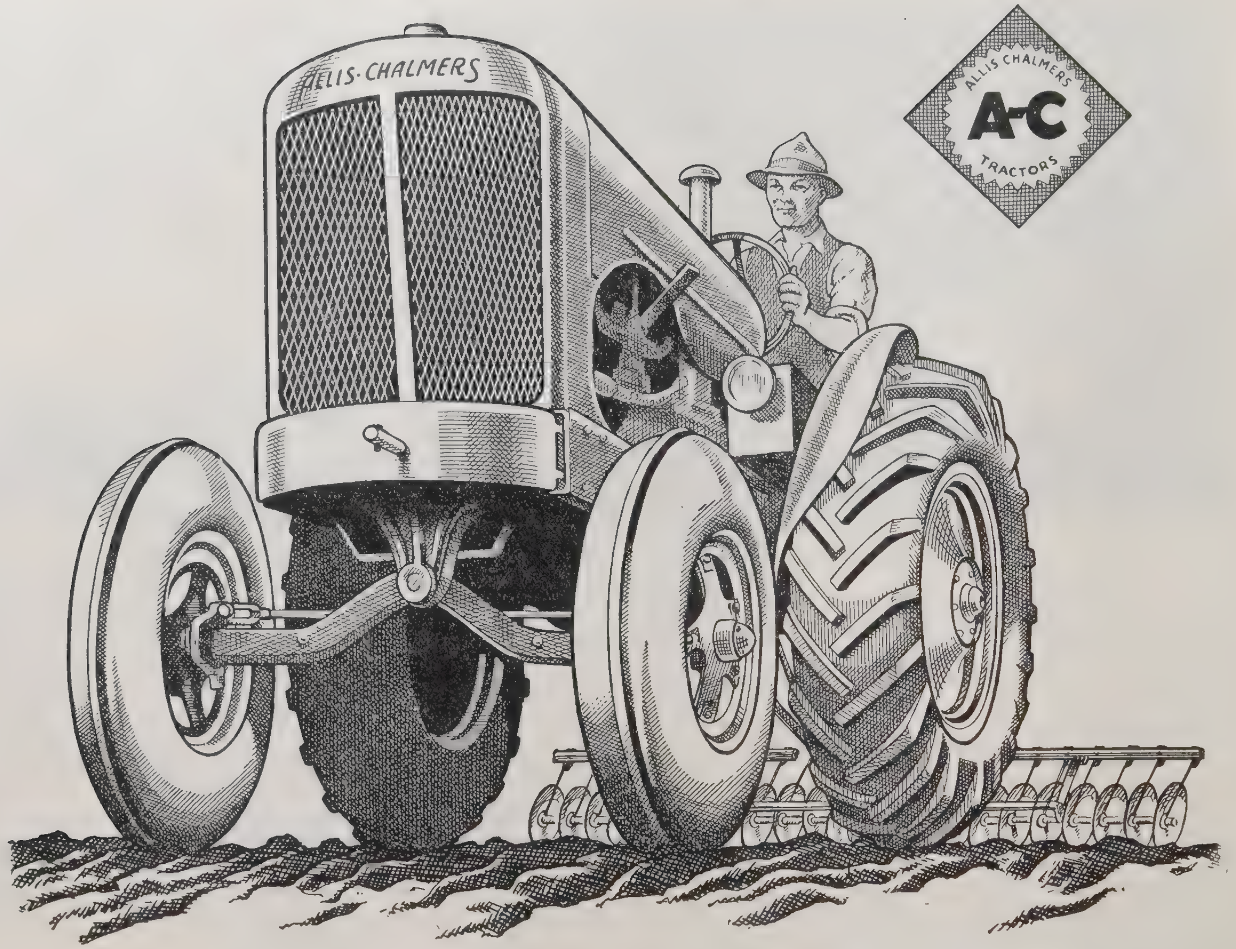

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# Potato Growing in New Zealand

By J. H. CLARIDGE, *Seed Certification Officer, Wellington.*

**WHILE the potato is probably more widely grown in New Zealand than any other crop, it being found in almost every private garden and on almost every farm, its production on a commercial basis is in the main restricted to fairly closely-defined areas. The accompanying maps indicate the main concentration in this respect to be throughout Canterbury, with secondary areas in the west coast district of the Wellington land district, in Otago and Southland, and south of Auckland City.**

THE main limiting factors to a wider spread of production on a commercial basis are those of soil and climate, these having a direct effect both on crop yields, and on liability to disease attack.

The normal acreage grown and the average yield of table potatoes per acre based on the average figures for the seven years 1935-36 to 1941-42 inclusive are set out in Table I.

## *North Auckland Area*

This area extends as far south as and includes the Pukekohe district, where most of the production of the area is centred. The total acreage recorded for the area is below that actually grown, on account of the fact that quite an appreciable area is planted within the borough of Pukekohe and is accordingly not included in the official returns. In the Pukekohe district, in particular, a cropping programme has been developed which is probably unique in the world. According to the frost possibility of the particular locality an early planting may be carried out from the end of April until July, and the crop is harvested four and a half to five months later as new potatoes, as soon as the tubers are of marketable size. Some of the tubers from this crop are retained for a late planting about December. The produce of this late crop again dug immature provides seed for the early planting of the subsequent season. The success of this cropping programme can be attributed largely to the ability of immature tubers of the Northern Star variety to recommence growth without passing through the usual dormant period required by other varieties. The variety mentioned is now not so popular with commercial growers on account of its relatively poor quality, and as a result there has been a tendency to depart from the "two-crop" programme in order that other varieties, particularly Arran Chief, might be grown. The "two-crop" programme fits so well into the scheme of production in this district, however, that many growers are persevering with a variety which is not so adaptable to the programme in order to improve quality. They prefer this alternative rather than to adopt a modified programme which would be more suited to the type of growth of other varieties, but which would not give the same results in regard to the supply of the particular market available to Pukekohe-grown potatoes.

Table 1.—**Normal acreages and yields of potatoes grown in various parts of New Zealand (based on the average acreages and yields during the period** 1936 to 1942.)

| Area. | Key No. on Maps. | Acreage grown. Acres. | Yield per acre of Table Potatoes. Tons. |
|---|---|---|---|
| North Auckland | 1 | 1250 | 3.9 |
| South Auckland | 2 | 775 | 2.6 |
| Gisborne | 3 | 250 | 2.4 |
| Hawke's Bay | 4 | 675 | 4.0 |
| Taranaki | 5 | 175 | 3.2 |
| Ohakune-Raetihi | 6 | 350 | 3.8 |
| Rangitikei-Wanganui | 7 | 850 | 4.3 |
| Manawatu-Horowhenua | 8 | 775 | 3.9 |
| Wairarapa | 9 | 300 | 3.7 |
| Nelson | 10 | 550 | 3.2 |
| Marlborough | 11 | 250 | 4.6 |
| North Canterbury | 12 | 7000 | 3.7 |
| Ashburton | 13 | 1000 | 3.9 |
| South Canterbury | 14 | 2950 | 5.2 |
| North Otago | 15 | 500 | 3.5 |
| Otago | 16 | 1075 | 5.4 |
| Southland | 17 | 1075 | 4.2 |
| New Zealand | | 19,800 | 4.0 |

In the remainder of the area plantings are undertaken to enable the crop to be harvested as early as possible coincident with the climatic conditions of the particular locality, it being accepted that this area is suitable primarily for the production of early potatoes. Use is made of seed potatoes obtained either from the Pukekohe district or from the South Island.

The yield of table potatoes which is recorded as a "normal" one for the area is probably rather high in relation to southern districts, owing to the fact that included in the market sample of early potatoes is a larger proportion of tubers of small size than in the case of a table sample of main crop potatoes.

Very heavy dressings of artificial manures are used in the production of crops in the North Auckland area, and growers may sow as much as one ton per acre of a mixed fertiliser.

Several sprayings of the crop are necessitated owing to the liability of attack by late blight, but the high prices ruling for the produce are sufficient to offset this added production cost.

As mentioned earlier, the Northern Star variety has been the most important variety in this area, though other varieties, particularly Arran Chief in the Pukekohe district and Arran Banner elsewhere, are now being more widely grown than formerly.

The earliest potatoes from the North Auckland area arrive on the market in September, the supply being at its height in November and December and finishing in the New Year. The city of Auckland provides the main outlet, though certain quantities will find their way as far south as Wellington and even on occasion to the South Island.

### *South Auckland Area*

This area, comprising the balance of the Auckland Province, produces relatively low yields in most seasons and can be regarded only as a supplementary supplier of early potatoes for the urban population of the province.

It may be regarded generally as an extension of the area of potatoes being grown in the more northern part of the province, and though slightly later in certain localities, is subject to somewhat similar conditions. Planting is usually undertaken as early as seasonal conditions will permit, and crops, particularly the later ones, are subject to attacks of late blight. The Aucklander Short Top variety is more extensively grown than any other in this area.

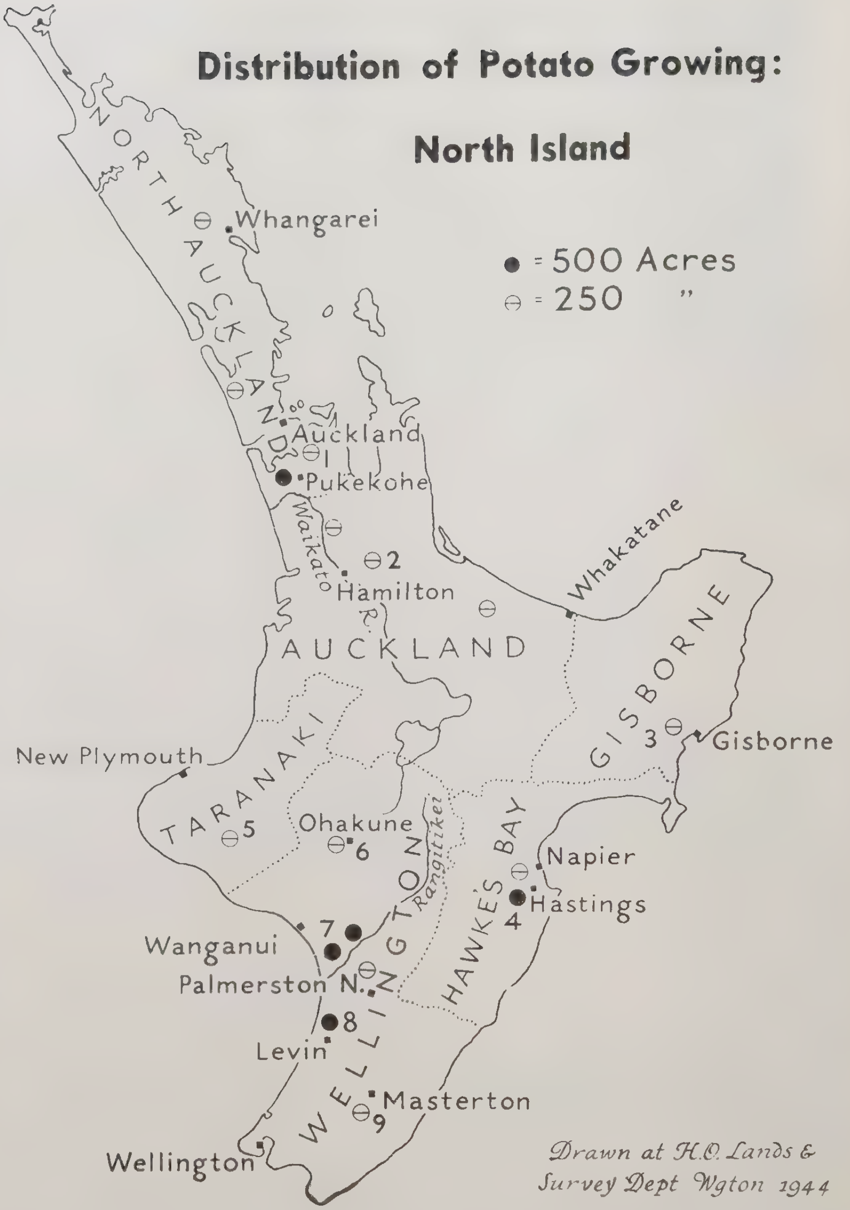
### *Poverty Bay Area*

Apart from a limited outside sale of early potatoes, the produce of this area is consumed locally. In suitable localities early crops are planted for marketing in December and January, while in other localities at higher altitudes later plantings provide a supply of main crop potatoes for consumption during the autumn and winter. Growers rely on the South Island for their seed supplies. Late blight is not important in most seasons, but considerable damage in a dry summer can be caused by the potato moth.

### *Hawke's Bay Area*

The season of production in Hawke's Bay also is widespread, ranging from the growing of pre-Christmas crops in favoured localities, especially around Napier, to the production of considerable quantities on the Heretaunga Plains from January onwards, and limited areas of main crop potatoes further south in this area.

Growers depend very largely on South Island sources for their seed supplies, Aucklander Short Top being the popular variety. Dakota and Inverness Favourite are in demand to a smaller extent, and are used more in planting crops for later digging, while Arran Banner is used largely for the earliest-dug crops.



Late blight is not troublesome in this area, but crops are subject to severe damage by potato moth in the late summer if a dry season has been experienced.

Potatoes from Hawke's Bay assist materially in the supply of the Wellington market in the early months of the year before the South Island crop is ready. An appreciable portion of the crop, however, is consumed locally over a much longer period than the outside market is supplied.

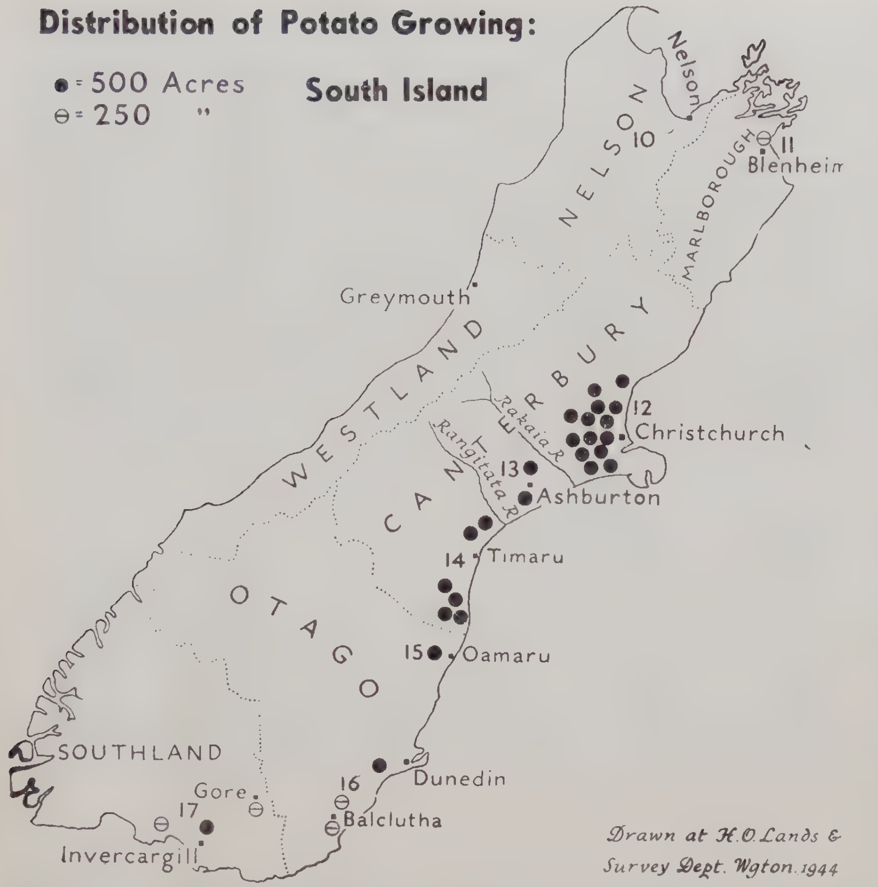
### *Taranaki Area*

Potato growing in Taranaki is solely for local consumption and is extremely limited in scope. Late blight can cause very heavy losses in some seasons, but growers generally consider that spraying is not worth while in view of the very minor commercial importance of the crop.

### *Ohakune-Raetihi Area*

Potato growing in this area is undertaken at elevations of approximately 2,000ft., and under fairly rigorous climatic conditions. The crop is often associated with the production of vegetables, and is frequently the first to be taken following the stumping of the land, which in its natural state was all bush covered. The district is subject to severe frosts and accordingly few plantings are made before October. Harvesting of immature potatoes may commence in February or even January if a suitable market is available, and may continue

## Distribution of Potato Growing: South Island



Drawn at H.O. Lands & Survey Dept. Wgton. 1944

right on until the following August or September. The rainfall of the district is heavy, but, owing to the very open nature of the volcanic soil, surplus moisture drains away readily. As a result growers find that they can leave their potatoes in the ground throughout the winter, digging a portion at a time as a market offers. Actually, fully-mature main crop potatoes from this district dug and marketed in August and September have at times competed in price against the earliest-dug new potatoes from Pukekohe and Nelson. To the casual observer they are indistinguishable from new potatoes, owing to their very fine skin and clean appearance. Actually they are fully-ripened potatoes from crops planted 10 months earlier.

Aucklander Short Top is the main variety of the district, though Majestic is also grown to some extent. Some growers retain their own seed, but others make a practice of bringing up fresh seed from the South Island occasionally. It is doubtful whether this latter practice is really justified under the conditions existing in this district. On the contrary, owing to the climatic conditions of the area, it is itself considered to be one of the most suitable in New Zealand for purposes of seed potato production. Because of the relatively high prices normally obtained for potatoes of all sizes when sold in competition with new potatoes, however, growers as a rule are not interested in the seed market, though a few producers do enter their crops for certification. An additional hindrance to the development of a seed trade is the prevalence of powdery scab on potatoes from this area. Particularly is this the case when the crop immediately follows, or is the second potato crop in succession, after stumping operations.

Late blight is liable to attack crops in this area, and at times to cause considerable losses. Growers prefer to accept these losses rather than to incur regular spraying costs. There is always a risk of frost damage to crops before they have reached maturity, and an early autumn frost may result in considerably-reduced yields.

The bulk of the crop is forwarded to the Auckland market, though supplies are also sent to Wellington, particularly about August.

### *Rangitikei-Wanganui Area*

Most of the potatoes in this area are grown in the district north of Marton.

Plantings normally take place in September or early October, the crop being dug and marketed from January to April. The general quality of potatoes from this area is good, and the produce finds a ready market in the North Island prior to the arrival of supplies from the South Island.

The area, along with the Manawatu area next to be described, provides an excellent example of how growers can help themselves by co-operative effort in the marketing of their crops. In each of these districts the commercial growers have, with the support and assistance of merchants, formed growers' associations, the main function of which is to bring about an improvement in the grade of potatoes forwarded to the various markets. Each member is given a number and is supplied with printed tags bearing this number, which he attaches to his sacks of graded potatoes, thus providing identification of the produce. The stipulated grade for "tagged" potatoes is of a higher standard than that of the fair average quality grade operating for shipments from the South to the North Island. Complaints regarding inferior grade of "tagged" potatoes are investigated by a committee of the association, the association having authority to deprive offenders of benefits and even membership in the case of deliberate faulty packing.

By this means the growers in these two areas have been able not only to improve the general quality of the potatoes they market, but also to establish confidence on the part of purchasers in respect to the quality of

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Left—A healthy, well-cared-for crop in Hawke's Bay. Right—Maori labour is used extensively in the Pukekohe potato harvest.

"tagged" potatoes, and incidentally to command for their produce a premium over other potatoes. The procedure of tagging is applied only to those potatoes marketed in a mature condition after March 1 in any season, but it has had a beneficial effect on the quality of earlier-marketed potatoes also.

An appreciable acreage of the potatoes grown in this area is produced by men with up-to-date machinery who rent land for the season from recognised farmers, returning the land sown down in permanent pasture at the end of the period.

Occasional attacks of late blight are experienced throughout this area, but the loss due to this cause is not sufficiently great to induce growers to spray their crops regularly.

The main variety throughout the district is Aucklander Short Top. The best growers purchase a regular quantity of certified seed from the South Island each season, using the produce of this seed to plant their main crops in the following season. Generally it is an unwise plan to retain locally-grown seed more than one season.

Potatoes from the Rangitikei district are sold in considerable quantity on both the Auckland and Wellington markets, as well as supplying the main intermediate centres, during the period from January to May.

### *Manawatu-Horowhenua Area*

This area extends as a continuation of the Rangitikei area, taking in all those crops along the west coast southwards from the Rangitikei River.

The earliest crops in the area are grown in the more southern localities, where planting is undertaken as early in the spring as seasonal conditions permit, and the crops are marketed from November onwards. Further northward the seasons of planting and of harvesting become progressively later, the latest crops in the northern part of the territory being harvested in March or April.

As mentioned earlier, growers have formed themselves into an association the prime object of which is to improve the grade of mature potatoes coming on to the market.

Damage to crops by late blight occurs in seasons favourable to the spread of this disease, but spraying is not a common practice.

The Aucklander Short Top variety is most widely grown, though growers catering for the earlier markets are testing out other varieties to find something more suitable to their requirements. Arran Banner is finding some favour for this purpose. Seed supplies are obtained regularly from the South Island.

Practically all the potatoes from this area find their way on to the Wellington market, which is almost entirely dependent on supplies from this source during the months of December and January.

### *Wairarapa Area*

The scope of potato production in the Wairarapa area is limited. Planting is generally undertaken in September or early October, though small quantities of potatoes are planted earlier to meet the new potato market,

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**Potatoes play an important part in some districts in transforming bush land into grassland.**

Auckländer Short Top and Dakota are popular varieties, seed for the purpose being obtained from Canterbury. Late blight is not normally a serious disease, but in dry seasons potato moth may cause some damage to crops.

Most of the produce is consumed locally, though certain quantities are forwarded to Wellington during the period February to April.

## *Nelson Area*

This area has built up a reputation for the production of first-early potatoes, which, depending on the relative conditions of the markets, are either shipped to Wellington or transported overland to the West Coast and Canterbury.

Planting in favoured localities may be undertaken in May, and the earliest potatoes may be marketed as early as August. The main supply of the district is planted in the early spring and becomes available from November onwards.

Auckländer Short Top and Majestic are popular varieties, but dug as first earlies are very subject to skinning. Growers, as in other early-growing districts, are accordingly on the look-out for an earlier-maturing variety with an equal yielding capacity. They obtain regular seed replacements from Canterbury.

Late blight is not troublesome up to the time of the year by which most of the crops are dug, but potato moth may at times cause serious loss.

## *Marlborough Area*

The yields obtained in this district exceed the Dominion's average quite appreciably. There is only a restricted area really suited to potato growing, however, and there is no large local requirement, while Wellington, the nearest outside market, has a better shipping connection with Canterbury ports.

The season of harvesting is spread over a considerable period, from Christmas time until late autumn. The Dakota and Auckländer Short Top varieties are chiefly grown, seed supplies being renewed frequently with seed obtained from Canterbury.

## *North Canterbury Area*

This area, embracing that portion of the province north of the Rakaia River, produces one-third of the Dominion's potato requirements. Though the crop is grown over most of the flat land in the area, it is more concentrated on the heavier soils about Rangiora and Kaiapoi, through Belfast and the outskirts of Christchurch, into the Lincoln, Tai Tapu, and Springston districts, and extending into the less heavy soils of Leeston and Southbridge.

The conditions of cropping vary from district to district, but broadly the area may be subdivided into two. In the first portion fall the heavier lands running through the belt outlined above. In these localities higher yields are obtained, but growers find it a difficult matter to maintain yields if reliance is placed on home-grown seed. This is most pronounced on the richest soils, and growers are realising more and more the necessity of continually introducing seed from districts more favoured in this respect.

In the second portion of this area, extending generally away from the first portion towards the hills, production occurs on soils lighter in type and with lower moisture-retentive properties. These areas, it is found, produce seed potatoes of high cropping power, due to the relative ease with which the spread of virus disease may be controlled. Thus, while yields are much lower than on the heavier lands, growers obtain a ready sale for their seed potatoes. As an outcome many are specialising in this aspect of potato production to the benefit of themselves and of the potato-growing industry in general.

In isolated pockets—around some of the sheltered bays of Banks Peninsula for instance—potatoes are grown for marketing well before Christmas, while in other districts supplies commence to be available in the New Year.

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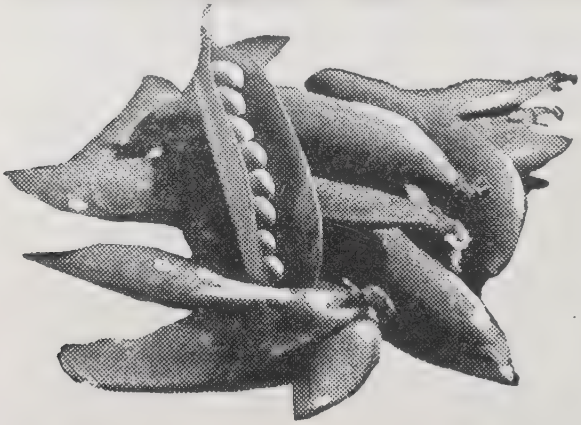

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Generally, however, potato digging in the North Canterbury area does not take place until the autumn, when the crops are fully mature.

The month of October is generally regarded as potato planting time in Canterbury, and a trip through the country on Labour Day would convey the impression that this holiday was established for the planting of potatoes.

May is the busy month for the digging of the crops, though, should the autumn be wet, later digging is necessitated, and in really unfavourable seasons some crops may still remain undug in September.

While a proportion of the crop is sold "off the forks," the greater part is pitted on the grower's farm immediately after digging. The marketing of this produce is spread over the ensuing months until November. During this period very considerable quantities are shipped to all North Island ports. These potatoes supply this market after the North Island crop is consumed—generally about the beginning of May.

A fairly wide range of varieties is grown in this area, preferences varying with the type of soil and with the individual farmers.

Aucklander Short Top is the variety most generally grown, although Arran Chief and Inverness Favourite are preferred on the heavier lands, while Dakota finds a place on the lighter soils. Arran Banner is now displacing Epicure as the popular early variety. Other varieties, though numerous, occupy a very small percentage of the total acreage.

Late blight is seldom severe in North Canterbury, and crops are accordingly not sprayed as a preventive of this disease. A certain amount of potato moth damage may occur in the drier seasons, but if moulding of the crop has been adequate, it seldom assumes economic importance.

Powdery scab is occasionally found in the wetter areas and on the heavier land, while eelworm attack is sometimes in evidence in crops grown on the lighter, drier soils. In very heavy land, or where the humus content of the soil is high, considerable loss may be incurred through damage by potato scab, but relatively the area in which this disease is serious is not great.

Perhaps the worst feature of potatoes from this district, and in fact from the whole of Canterbury, is their tendency to develop dry or wet rots during storage and transport. In the main these rots gain entrance through a mechanically-caused skin injury. In this respect the farmer himself can do much to alleviate the condition by more careful handling of the crop during digging and grading, thus avoiding as far as possible injury to the tubers through which infection might take place.

## *Ashburton Area*

In this area, extending from the Rakaia River in the north to the Rangitata River in the south, potatoes are not so commonly grown as in other parts of Canterbury.

The general practices followed compare with those applying in the North Canterbury area. In odd instances immature crops may be dug in January if a good market exists, but normally growers prefer to allow their crops to grow to maturity before harvesting.

Aucklander Short Top and Dakota are the most commonly grown varieties, with Arran Chief and Inverness Favourite finding a place on the heavier soils. The position in regard to disease is similar to that in the North Canterbury area.

## *South Canterbury Area*

Potato growing in this area is undertaken to a considerable extent on the heavy soils of the Waimate County, where yields are obtained which over a similar area are unexcelled anywhere in New Zealand. Particularly is this so in the Willowbridge-Studholme district, where average yields exceeding 10 tons per acre are common and where one grower with an appreciable acreage has reported an average of over 20 tons per acre in each of three successive seasons. Even this latter instance is not regarded as unique for this district.

Another district in this area producing heavy crops is the heavy dairying land in the vicinity of Temuka.

On the other hand, a considerable acreage of potatoes is also grown on the lighter soils of the area, such for instance as occur extensively in the Levels County. These crops materially reduce the general average yield for the whole area, which nevertheless is one of the highest yielding in New Zealand.

In most respects, such as times of planting and harvesting, diseases, and marketing, the area closely resembles the North Canterbury area.

The main variety in the heavier cropping districts is Arran Chief. This variety has almost completely replaced the mixture of Northern Star and Arran Chief which was commonly grown prior to the introduction of seed potato certification, but is itself being replaced to some extent at present by Inverness Favourite. Aucklander Short Top is the popular choice in the other districts, though the Dakota is favoured in the locality of Rangitata Island.

Growers on the heavier land have extreme difficulty in maintaining the yielding ability of their own grown seed, due to spread of virus disease. Several farmers on this land who are growing the Arran Chief variety make it a practice to bring a supply of

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**Mechanisation of potato sowing and harvesting operations has been developed very considerably in recent years.**

seed each year from the more southern districts. This supply acts as a source of seed for their main crops in the subsequent season, after which all the produce is disposed of.

Seed from these crops may be used another season by other growers, but finally there is a supply of potatoes of seed size which cannot be sold for purposes of replanting. This material, described commercially as "island smalls," finds an outlet particularly in the export trade to Fiji—which island takes most of the potatoes shipped from this country to the Pacific Islands—where it is consumed by the native population. On the lighter lands the problem of potato deterioration is not so great and some crops on these soils are producing seed potatoes of high quality.

## North Otago Area

In this area potato growing is confined mainly to the Waitaki County. In some of the sheltered spots south of Oamaru crops are grown to supply new potatoes for the pre-Christmas market. In such localities plantings are undertaken as soon as the risk of frost is past, Jersey Bennes being a frequently-used variety for this purpose. The major acreage grown in the area is used for main crop production, however, and in this capacity the area may be regarded as an extension of the South Canterbury area. Some potatoes are shipped to the North Island during the winter months, but most are consumed locally.

## Otago Area

Odd potato crops are scattered widely in this area, but the bulk of the acreage is confined to the Taieri Plain and to the Inch Clutha and surrounding district.

In the Taieri district potatoes for the Christmas market are grown in sheltered localities, while small quantities are also produced in suitable spots on the Otago Peninsula. The main crop on the Taieri is planted in the latter part of October, digging being undertaken in the late autumn.

Main crop potatoes are produced in the Inch Clutha district also, the island itself, with its extremely fertile and friable soil, rivalling the best parts of the Willowbridge district in regard to yields.

In a normal year practically all the potatoes produced are disposed of for consumption within the area itself, though occasionally supplies are shipped to the North Island. The main varieties grown are Arran Chief and King Edward, with Jersey Bennes being used for the production of the early crop.

Crops are very subject to attack by late blight throughout this area, but growers generally are not prepared to incur the expense of regular spraying. It is felt by most growers that the extra cost of spraying would be greater than that of losses suffered through late blight attack, but it is doubtful if the producers realise fully the losses occasioned by late blight due to reduced yield, as distinct from blight-infected tubers.

Other tuber diseases, except for an occasional attack of potato scab, when conditions are suitable for its development, are not of moment. Growers through the greater part of this area experience difficulty in maintaining the vigour of their own seed stocks over a period of years, and accordingly resort to the practice of introducing certified seed from further south.

## Southland Area

Potato growing is widely scattered over the moister and more fertile soils of this area, though plantings of this crop are individually small.

There is some concentration of potato growing in the Western Bush districts, where farmers who are clearing their country of bush take a crop of potatoes during their programme of preparing the land for permanent pasture.

From this district, in particular, seed of the highest vitality is obtained, and growers find for their surplus seed a ready sale at commanding prices to large growers in districts further north. The supply of this seed in recent years has done a great deal to maintain the production of the heavier yielding potato lands of Canterbury and Otago.

Practically the whole of the crop of table potatoes is marketed as "main crop," while only limited quantities are sold for consumption outside the district. The varieties Arran Chief and King Edward are widely used in this area.

As in the case of Otago crops, late blight is always liable to make inroads into a crop, but growers elect not to spray in the hope that "blight will not attack this season."

Powdery scab becomes of importance in those areas recently claimed from the bush, particularly where the grower aims to cater for the northern seed trade.

## Summary

The general picture of potato production may be summed up in a few words.

In the northern part of the North Island and in favoured localities elsewhere—particularly Nelson—the trade in new potatoes is catered for. In the balance of the North Island supplies are produced to support the island's requirements from December to March or April. For the rest of the year the North Island is almost entirely dependent on the Canterbury crop, the balance of the South Island producing little more than sufficient to meet the demands from the urban areas adjacent to the producing districts.

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### WEEDS.

Weeds, their means of dispersal, and cost and methods of control are dealt with in Bulletin 202, "Weeds," which is available free from offices of the Department of Agriculture. Much farm land has deteriorated through lack of control of weeds, and this bulletin contains invaluable information on the recognition of weeds and their properties.

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# Milk Fever, Staggers, and Allied Complaints

**EACH calving season the dairy farmer is liable to have cases of milk fever, staggers, or similar complaints in his recently-calved cows. At one time milk fever was the commonest of these. The symptoms were characteristic, so that the owner had little difficulty in deciding what the trouble was, and, with the introduction of udder inflation, had a satisfactory treatment at hand, which gave good results in most cases. Within the past 25 years, however, in this and other dairying countries other conditions have come to light—so-called grass staggers, acetonemia, and milk fever cases not following the typical course, or showing classical symptoms.**

*By*

D. MARSHALL,
*District Superintendent,*
*Livestock Division,*
*Wellington.*

IT is not certain whether this is due to more accurate diagnostic methods, through veterinary advice being obtainable more quickly, so that the true nature of many such cases is noted, or as seems more likely, to certain changes in farming practice. Pastures have been improved in many countries and there is a tendency to rely too much on green grass alone as a dairy cow food. As a result of topdressing spring growth is much more rapid. The dairy cow has been improved on the production side, but with less attention to constitution and disease resistance.

In discussing the various diseases reference will be made to certain mineral constituents of the blood, particularly calcium and magnesium. These are present in small amount, but at an almost constant level. Calcium is a stimulant to nervous activity and to tissues generally. Magnesium has a somewhat opposite action; it tends to have a sedative effect on nervous action. Any marked fall in one of these elements may allow the action of the other to become exaggerated and more marked. Thus, if calcium falls, as in milk fever, the sedative effect of the magnesium becomes evident, producing coma.

**The level of these minerals in the blood is governed by the parathyroid glands, very small organs lying beside the thyroid glands in the throat region. There is a close relation between the various endocrine-producing organs of the body—the thyroid, parathyroid, pancreas, and ovaries—with the uterus and udder. At calving time and afterwards, owing to changes in the activities of these organs, the balance may readily be upset, which largely accounts for the prevalence of the above group of troubles at this period. Young green pasture feed has also some influence on the mineral balance in the blood.**

In the discussion which follows each disease will be treated as a clearly-defined condition, but it must be realised that in practice such a distinction often does not exist. Blood analysis, which is a valuable aid in diagnosis, cannot be carried out on the spot.

### MILK FEVER.

Milk fever, once called also parturient apoplexy, from its sudden onset, is probably the longest known of these diseases. Many theories were propounded as to its cause, such as withdrawal of blood from the brain to the udder, formation of toxins in the udder, and lack of sugar in the blood. Dryerre and Greig, then of the Royal Dick Veterinary College, Edinburgh, first showed that there was in milk fever a sudden and marked reduction in the calcium level of the blood. The way in which this was brought about is not yet certain, though Greig's theory that it resulted from a failure in function of parathyroid gland is generally accepted. There is indeed a fairly sudden demand on blood calcium when udder function starts, as there is approximately half an ounce per gallon in milk and a somewhat higher amount in colostrum. (Milk fever in ewes, it may be noted, is evidenced before lambing).

### *Symptoms*

Milk fever is not known in heifers, and the likelihood of its occurrence increases with the age of the cow until she reaches her most productive period about 6 years old. Also it is more often seen in the high-producing cow.

Typical cases occur within the first 24 or 48 hours; exceptionally the cow goes down with an attack during the act of calving, which may lead to a mistaken diagnosis and the belief that there is a faulty position of the calf, whereas the failure to calve is due to the paralysing of all muscular activity.

First signs are of uneasiness and paddling gait. The animal may go down and stagger to her feet once or twice before becoming finally recumbent, with head thrown round on the flank in the typical attitude. Usually there is little evidence of excitement. Breathing is slow and natural, but sometimes snoring. The temperature is a good guide, and instead of the normal 101-102, it may be 100, 98, or even lower. Many cases become almost completely insensible. While on level ground the cow may remain lying in a more or less natural position, it must be remembered that she has no muscular control, and if she becomes cast with her back down hill or in some small depression, or against a fence, she has no power to right herself.

### *Handling Cast Cows*

When the animal is found down, especially if lying flat on her side and considerably bloated, she should immediately be rolled up into a natural position resting on the brisket, and supported thus with a sack of earth.

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This will quickly relieve the bloat, and will lessen the likelihood of paunch contents running back up the gullet and being drawn into the lungs, thus setting up either suffocation or fatal septic broncho-pneumonia, a common cause of death in animals which have lain for some hours in a bad position. In the semi-comatose stage drenching is dangerous for a similar reason, namely, that throat muscles are paralysed and there is no proper control of swallowing, so that fluids may readily enter the lungs.

### *Calcium Treatment*

The injection of a suitable calcium solution into a vein is an effective treatment, but is better carried out by a veterinarian. A solution of calcium gluconate—3oz. in three-quarters of a pint of water, boiled and cooled to blood heat, may be injected under the skin, part on each side of the neck in front of the shoulder-blade, using a suitable gravity funnel or bottle tube and needle. The solution must be sterile and at blood heat.

Where such treatment is not available the udder should be firmly inflated, first making sure that the outfit has been boiled and that the udder, particularly points of teats, is clean, otherwise mastitis may result.

Where the animal is still on her feet the same treatment may be carried out, or a drench of 2oz. calcium chloride may be given, with two or three pounds of molasses. (**Note:** Calcium chloride solutions should **not** be used for hypodermic injection).

### *Prevention*

There is a good deal of evidence supporting the belief that the short green young grass of the early spring has an upsetting effect on the mineral balance, and that where cows are brought on to this feed, especially off something markedly different, a few days before calving, more milk fever will occur; certain "growthy" seasons appear to favour occurrence of the disease. It is better to make all such pasture changes gradually, and to see that a good ration of hay is also available. The use of bonemeal licks, the liming of pastures, and the provision of water troughs are logical measures which appear to give good results.

Drenching of susceptible cows immediately after calving with the above calcium and molasses drench is a wise measure.

It must be admitted that the cow with milk fever is not suffering from a lack of lime in her diet, but from a failure properly to utilise her own supplies. By giving lime in excess at this time the balance may be tipped.

## GRASS STAGGERS.

Grass staggers is a term applied very loosely to any condition in which there may be a staggering gait. One form which could be called **acute grass staggers** or lactation tetany may be defined as a condition occurring in the spring months (principally September) from a few days to six or eight weeks after calving, and characterised by some degree of nervousness, a stilted or staggering gait, sometimes by convulsive seizures or fits in which the animal may die suddenly, and by a lowered magnesium content of the blood. It may occur in heifers, in dairy cows, and in beef cows.

The cause is not understood. The lowered magnesium content of the blood is apparently the cause of the nervous symptoms, but why this should be brought about is not clear. Young, rapidly-growing pasture, especially when the growth first commences, is a highly nitrogenous diet, and, if fed alone, is unbalanced. It is believed to exert some influence on the mineral balance in the blood.

### *Treatment of Acute Form*

A hypodermic injection of about 4oz. of epsom salts (magnesium sulphate) boiled in 8 to 10oz. of water may be given under the skin in front of the shoulder-blade, using a suitable funnel, tube, and needle. An alternative treatment is ½lb. epsom salts with 2 to 3lb. molasses given in a drench. Drenching is, however, risky, as it may precipitate a fit; it should be carried out quietly, with the animal disturbed as little as possible.

The above treatment is reasonably satisfactory in the early stages, or where the animal is still on its feet. There is a second large group of cases in which after some preliminary stage of excitement the animal goes

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down, and may remain down for several days. For simplicity and convenience this may be called **complicated grass staggers,** in which case blood analysis may show some reduction in both calcium and magnesium. Very often there is a degree of acetonemia, described later. The cow rarely becomes unconscious, but is dull and stupid; it refuses to eat, and may struggle aimlessly at intervals.

Treatment of such cases is difficult. Where the owner must carry out the treatment himself a magnesium injection may be given, and small doses of calcium by the mouth, combined with plenty of molasses, which has an effect on the acetonemia. Drenching must be carried out carefully to avoid choking. Molasses should be repeated in 2lb. doses twice daily.

### ACETONEMIA.

Acetonemia is a condition in which certain harmful substances known as ketones occur in the blood and tissues as a result of faulty digestion and breakdown of fat. The condition is related in some way to insufficient supplies of sugary or starchy (carbohydrate) material in the diet or failure to utilise these. It may result from an unbalanced diet, from temporary periods of shortage, or from failure to eat during milk fever or other disease. Recent investigations indicate that it is more common among our dairy cows in the spring than was supposed at one time. It has been suggested that a degree of acetonemia may be the underlying primary cause of the "complicated grass staggers" type of case.

Symptoms of a typical case of acetonemia are rapid loss of condition, dullness, and defective appetite. Accurate diagnosis depends on chemical examination of the urine. Most cases occur in cows within the first month or six weeks after calving.

### *Treatment*

Rational treatment consists of giving regular daily doses of some readily-assimilated carbohydrate food. Molasses is probably the most suitable in amounts of 4 to 5lb. a day. If the animal will drink this in solution, so much the better; if not obtainable, any starchy food such as flour or ground rice may be given. It should be properly cooked and in gruel form, with a little salt added.

A type of **paralysis** not apparently due to any change in the mineral substances in the blood is sometimes seen in cows before calving. Apart from inability to rise, the cow appears bright and normal, eats and chews the cud, and may shift about on the ground. The cause is not understood, but such cases usually recover after calving, and do not seem to require other treatment than hand feeding. They should, if possible, be in shelter, and bedded, to prevent sores on the knees and hocks.

In the above notes the outline of treatment is somewhat sketchy, but should be a guide where the owner is obliged to treat cases himself. Where cases of this kind occur and veterinary advice is obtainable, it should be availed of, since the inter-related nature of these conditions makes diagnosis difficult, and before satisfactory treatment can be adopted or suitable preventive measures taken an accurate diagnosis of the trouble is essential.

From the stock-owner's point of view **prevention** is more important than treatment, and the following general recommendations can be made:—

**Endeavour to feed cows during the dry period so that any loss of condition due to lactation can be regained.**

**Provide a mineral lick containing bonemeal and salt, both during the dry period and after calving, so that any defect in mineral content of the feed is covered, and the loss from the system due to milking is replaced.**

It should be remembered that though almost every cow has a dry period of two months or so, she has during this time to provide the minerals necessary for the bone formation of the unborn calf, which at this stage is going through its most rapid intra-uterine development. Likewise she has to repair the drain on her own reserves which occurred in the lactation period.

Avoid any sudden change in the nature of the feed in the period just before calving, and for the two months following. Where cows are brought from rough dry winter grazing to improved pasture for calving ample good-quality hay should be available, and this supply should be maintained long enough after calving to cover the time when the first flush of spring growth occurs. This helps to balance the high protein content of the young grass, and to counteract its laxative effect. Grass which has been grown through the winter and is to some extent matured is less likely to have an upsetting effect than the short recent growth occurring on a paddock previously eaten out bare.

**Many outbreaks appear to coincide with, or immediately follow, changes in the type of feed, or to occur just after the feeding of hay is discontinued. There is in general less trouble where good balanced feeding is maintained through the winter and continued until the first spring flush is past, and cows have settled down.**

In the "Journal of Agriculture" for March, 1942, Blakely and Dewes, of the Morrinsville Veterinary Association, gave an encouraging account of the value of the free feeding of molasses in the prevention of troubles of this kind. Molasses is difficult to obtain at present, but the principle of balanced feeding can still be observed. Sugar beet is a possible substitute, superior in this respect to mangolds or swedes.

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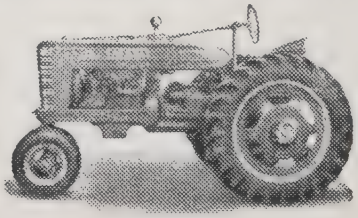

The powerful 3-4 furrow Farmall model that gives satisfactory and economical power under any field conditions.

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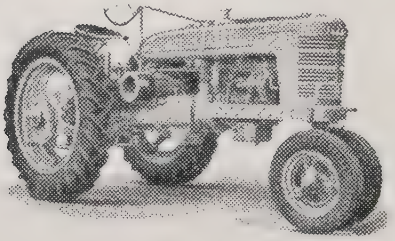

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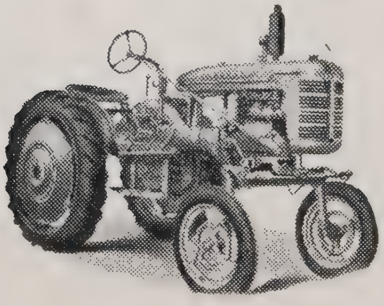

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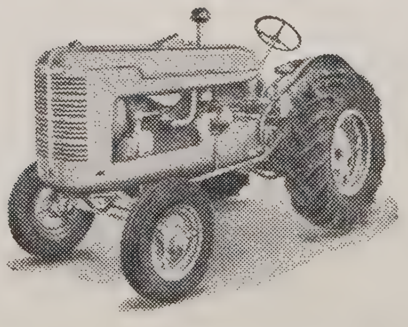

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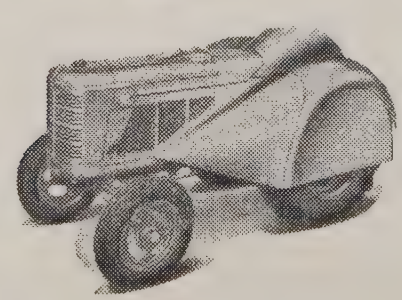

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# Economic Importance of Disease Losses

THE pig-raiser, while usually attributing his failure to all sorts of circumstances over which he has no control, seldom gets much sympathy when he blames his stock, with the result that he does his best to improve it and is always on the look-out for good animals. Unfortunately, some attempt to improve stock under conditions of inferior management, but others, appreciating the necessity of giving better animals a greater chance of showing their worth, improve their conditions and reap a rich reward.

*By*

**H. M. PEIRSON,**

*Superintendent of the Pig Industry, Wellington.*

SINCE there are few occupations in which skill and attention on the part of the owner count for success more than in farming, increased emphasis has been placed on disease control by way of housing and management improvement.

### *Recording Schemes a Spur*

Under the conditions prevailing prior to pig recording little information was available to the average pig-producer about the circumstances under which maximum production was achieved, and this, coupled with the desire on the part of the trade for better quality pigs, resulted in the introduction of pig recording. Many who have not made use of pig recording, or associated schemes, fail to appreciate that one of the main purposes of all instructional work has been to control disease by improved management, and so, to a very large extent, increase the earnings associated with pig production.

**The information supplied about the ability of pigs to grow and utilise a feed supply constitutes a challenge to any producer to give the pigs he owns a try-out under improved conditions before looking for improvement in better stock. Economic production, then, involves three objectives: First, the finding of better animals; second, the setting up of standards for measuring up the performance of stock, and third, the supply of information about management conditions which will reduce disease losses. The first and second are achieved only when the third is understood and practised.**

### *Greatest Loss on Farm*

The economic importance of disease control is widely recognised, but losses sustained by both the producers and the trade are not confined to the comparatively few pigs that are condemned and graded down when these arrive at the works for slaughter. While these, of course, are considerable, by far the greatest loss occurs on the farm, particularly prior to and just after farrowing. It might be said that this has little to do with disease control, but the returns that are obtained from pig-keeping are very closely associated with the nutritional care given to sows. Where this is good it offsets the possibility of disease in the offspring. All animals at birth have a decided inclination to grow. If this is destroyed, they lose their ability to resist infection, which is present everywhere, but it does not appear to affect the thrifty pig, because of its higher powers of resistance.

It is generally believed that on the average approximately one-third of the pigs born alive die during suckling and fattening. There are, of course, considerable variations in individual herds. The records of pig recording schemes show that in different herds the percentage survival at slaughter weights ranges from 50 to 90 per cent. of the pigs born. This is still the major tragedy of present-day pig-production, and is, therefore, of considerable consequence to the industry.

Particulars of the incidence and cause of pre-weaning mortality have been recorded by pig recording clubs from herds where the standard of management at that time was considered above that of New Zealand as a whole. These cover the records of 467 litters, collected in 1936.

PRODUCTION OF SOWS.

| Average of— | | | |
|---|---|---|---|
| Numbers born | .. 9.3 | per litter, | 4,414 pigs |
| Numbers weaned | .. 7.3 | " litter, | 3.440 " |
| Percent. of mortality | 22.7 | " litter, | 974 " |

This table shows what the average sow is capable of producing. The loss

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of 974 pigs is most striking, and was made up as follows:—

| | |
|---|---|
| Overlain | 422 |
| Born dead | 312 |
| Died at birth | 120 |
| Bad doers | 78 |
| Died of other causes | 42 |

It is probable that many of these losses could have been avoided, as they are largely the result of inadequate housing and bad feeding arrangements.

The largest group in post-weaning mortality can be described as "bad doers," and no precise reason can be given for the cause of death, or the numbers that die, but pneumonia, worms, tuberculosis, and bacterial infection are probably the chief causes of loss, while the incidence of disease is increased by insufficient trough space (particularly in summer when pressure of seasonal work entails neglect of pigs), unsuitable feeding, and inadequate housing, which is responsible for many losses in winter. Other causes are physical defects, gastric disorders, and hernia.

### *Survivors Expensive Too*

**While the extent of loss by death during the suckling and fattening period is substantial, it does not by any means give a true picture of the monetary losses incurred by the presence of disease in the herd. The loss of condition and capacity for growth in pigs that survive a setback caused by disease represents a greater financial loss than that caused by those that have actually died.**

The after effects of an attack of white scour during the suckling period, for instance, may extend the time taken for pigs to reach killing weights by four or five weeks, which represents a direct cost in labour and feed. If pigs die during suckling, or shortly after weaning, the loss is naturally less than it would have been if they had nearly reached bacon weight. In fact, it is often cheaper in the long run to kill unthrifty pigs at weaning than to try to fatten them. These pigs, for the most part, act only as incubators for bacterial infection, and become a source of danger to the rest of the herd. The number of deaths alone, therefore, gives little indication of the extent of economic loss due to disease on the farm. Fifty per cent. of deaths from over-lying is probably less serious than 10 per cent. of deaths from scours or pneumonia, as in the latter case the pigs which die represent only a small fraction of those which have been affected and which would, consequently, make poor liveweight gains in later life.

The annual loss by disease in any herd should give an indication of the success or failure of existing methods of management, and should at the

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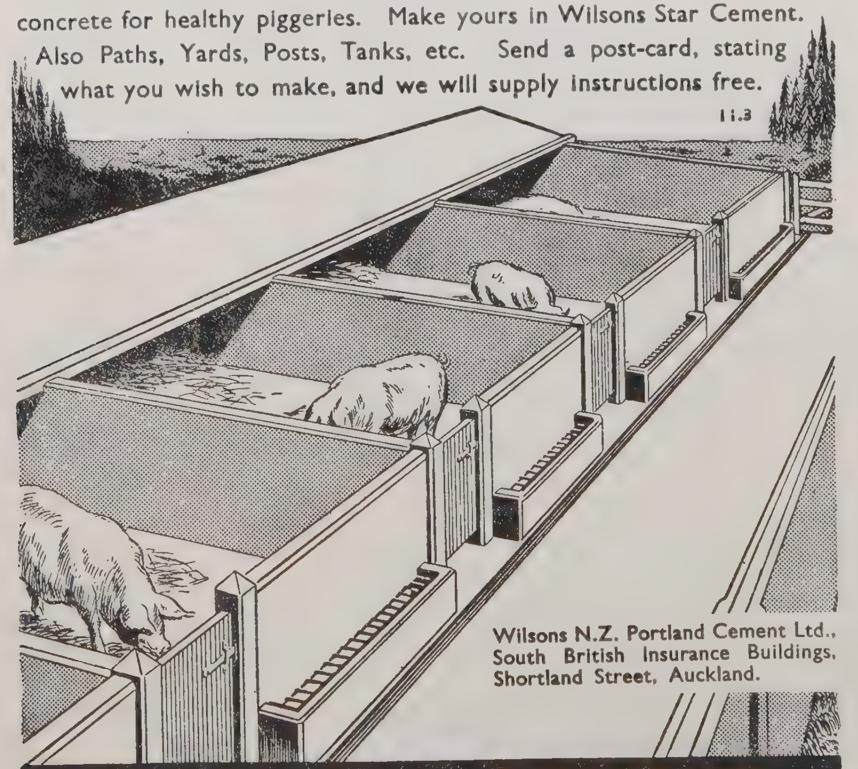

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## NEW DAIRY SUPPLY CONTROL ORDER GAZETTED

**A NEW Dairy Supply Control Order covering the delivery of supplies from farm dairies for the manufacture of butter and cheese during the 1945-46 season commencing on August 1 was notified in the Gazette of July 5.**

**The new Order, the Dairy Supply Control Order 1945, replaces the Dairy Supply Control Order 1942, and provides for a relaxation of the restriction imposed by the 1942 Order whereby supplies from farm dairies of milk or cream to butter factories were tied to particular butter factories. Under the new Order all butter suppliers during the 1944-45 season may, if they so desire, transfer the supply from their dairies to any other butter factory, so long as the owner of the particular butter factory to which they desire to deliver supplies is not prohibited from receiving the supply by any Order for the time being in force made by the Executive Commission of Agriculture. Any contemplated change should be made before August 1 in the North Island, or before September 1 in the South Island, or when making the first delivery during the 1945-46 season. Having commenced delivery of supplies to a butter factory, butter suppliers and their successors in occupation must continue to supply the selected butter factory for the whole of the 1945-46 manufacturing season. At the end of the 1945-46 season and at the close of any subsequent manufacturing season butter suppliers are at liberty to make a further change if they so desire, to operate from the commencement of the next manufacturing season, subject to the above-mentioned restrictions. Butter suppliers may not, however, transfer the supply from their dairies to a cheese factory during the currency of the new Order.**

**The former restrictions imposed on supplies of milk from farm dairies to cheese factories are retained. Cheese factory suppliers have the option of continuing delivery of supplies from their dairies to the cheese factory that was supplied during the 1941-42 season, or of transferring the supply to a butter factory.**

same time suggest possible lines for improvement.

It is not possible to obtain information on the actual losses on the farm between weaning and slaughter, nor does the number of pigs slaughtered per sow give any indication of this loss, since it is not known how many sows produce two litters a year. From 1921 to 1927 there was an increase of from 5.12 to 6.05 pigs killed per sow per annum. By 1940 this had increased to 9.28, and again, in 1941, to 10.5 pigs per sow. Since this latter date killings have gradually decreased to 8.8 per sow, the figure for the season ended March of this year.

## *Rejects at Works*

How much of this reduction in the number of pigs slaughtered per sow is due to disease it would be impossible to say, but the indications are that in the drive for increased production of bacon pigs, coupled with the shortage of labour on farms, it is quite possible that fewer sows have two litters a year, which seems to be borne out by an analysis of the returns of stock found diseased on inspection at meat-works and abattoirs.

Taking the year ended September, 1936, and the following years, the percentage of rejects over the last nine years has been as follows:—

| | Per cent. |
|---|---|
| 1935-36 | 13.9 |
| 1936-37 | 11.5 |
| 1937-38 | 9.1 |
| 1938-39 | 7.6 |
| 1939-40 | 4.8 |
| 1940-41 | 4.4 |
| 1941-42 | 4.6 |
| 1942-43 | 4.5 |
| 1943-44 | 4.3 |

There was a small increase in the percentage in the year 1941-42, but the position was recovered in 1943-44. The reduction in the percentage of pigs rejected from 13.9 in 1935-36 to 4.3 in 1943-44 is a clear indication that more care and attention have been given to the industry, in spite of a shortage of labour on farms over the past five years.

To enable a comparison to be made preventable diseases are cited in order of their severity for the season ended 1936, and again for 1944:—

| | 1936. Per cent. | 1944. Per cent. |
|---|---|---|
| Pleurisy | 5.55 | 1.54 |
| Abscess | 1.13 | .98 |
| Peritonitis | .94 | .03 |
| Wounds and bruises | .55 | .55 |
| Arthritis | .43 | .41 |
| Faulty castration | .32 | .16 |
| Skin diseases | .26 | .08 |
| Other causes | .81 | .46 |

A similar improvement has taken place in respect to the number of pigs totally condemned for tuberculosis, pleurisy, emaciation, and other causes.

During the years ended March, 1938 and 1945, respectively, the total condemnations averaged 3 per cent. and 2.24 per cent. Analyses of the causes are given in the following table:—

TOTAL CONDEMNATIONS.

| | 1938. Per cent. | 1945. Per cent. |
|---|---|---|
| Tuberculosis | 1.7 | 1.6 |
| Pleurisy | 0.3 | 0.1 |
| Emaciation | 0.3 | 0.04 |
| Other causes | 0.7 | 0.5 |
| | 3.0 | 2.24 |

## *Management Advice*

Whenever bad lines of pigs are found at works supervising meat inspectors report on them to the district office of the Department of Agriculture, and a field officer is detailed to investigate and advise the farmer. This service has been of inestimable value to the farmer, and has been a big factor in bringing down the percentage of condemnations and rejects to within a reasonable figure. Suipestifer, necrotic ulcers, abscess formation, faulty castration, and paralysis were frequent troubles a few years ago, and would cause much heavier mortalities but for the instructional service rendered through veterinarians, inspectors of stock, and supervisors of District Pig Councils.

The losses in the pig industry as a result of inferior quality carcasses, unexportable meat, and partial or total condemnation of carcasses are still quite considerable, and constitute a serious drain on the industry, which warrants a special effort on the part of the producer to improve still further the standard of pig management.

On a total kill of 680,000 pigs for the 12 months ended March, 1945, there were 177,859 porkers, at an average weight of 90lb., and 481,195 baconers, at an average weight of 151lb., making the average weight per carcass approximately 130lb. The total loss of pig-meat in every 100 pigs slaughtered is estimated at 546lb., made up as follows:—Total condemnations, 281lb.; partial condemnations, and condemned heads, 265lb. On a conservative basis the loss in weight of pig-meat on 680,000 pigs amounts to 3,716,000lb.—over 1,600 tons.

Apart from compensation by way of payment to the producer at a lower rate, the monetary loss is considerable. The farmer subscribes to an insurance fund on all pigs slaughtered of 1/- per pig, which on 680,000 pigs amounts to £34,000. When this known loss is added to all the others that for various reasons take place on the farm the total loss reaches considerable proportions. These losses are often due to some unimportant defect in the farm management, the isolation and correction of which present an immediate problem.

**When in doubt farmers are advised to consult their local District Pig Council whose business it is to help locate and correct errors in management.**

## Pig Broadcasts

UNDER the auspices of District Pig Councils broadcasts will be delivered in September as follows:—

Auckland, 1YA, on September 19, at 7.15 p.m., "Breeding Programme, or Fitting Pigs to the Feed Supply," by F. Barwell, Supervisor, Bay of Plenty District Pig Council.

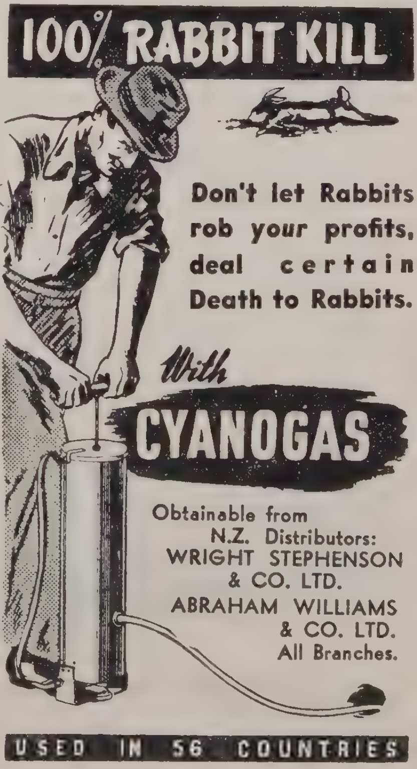
Christchurch, 3YA, on September 20, at 7.15 p.m., "Housing for Pigs," by H. McIntosh, Supervisor, Canterbury District Pig Council.

Napier, 2YH, on September 13, at 7.15 p.m., "The Bacon-curing Industry," by I. H. Owtram, Supervisor, Tairawhiti District Pig Council.

Wellington, 2YA, on September 18, at 7.15 p.m., "Obligation to Use Dairy By-products," by C. H. M. Sorensen, Supervisor, Taranaki District Pig Council.

### "PIGS FOR PROFIT."

Pig farmers will find much practical information of value in Bulletin No. 212, "Pigs for Profit." This bulletin is free and is available from the Department of Agriculture, Auckland, Wellington, Christchurch and Dunedin.



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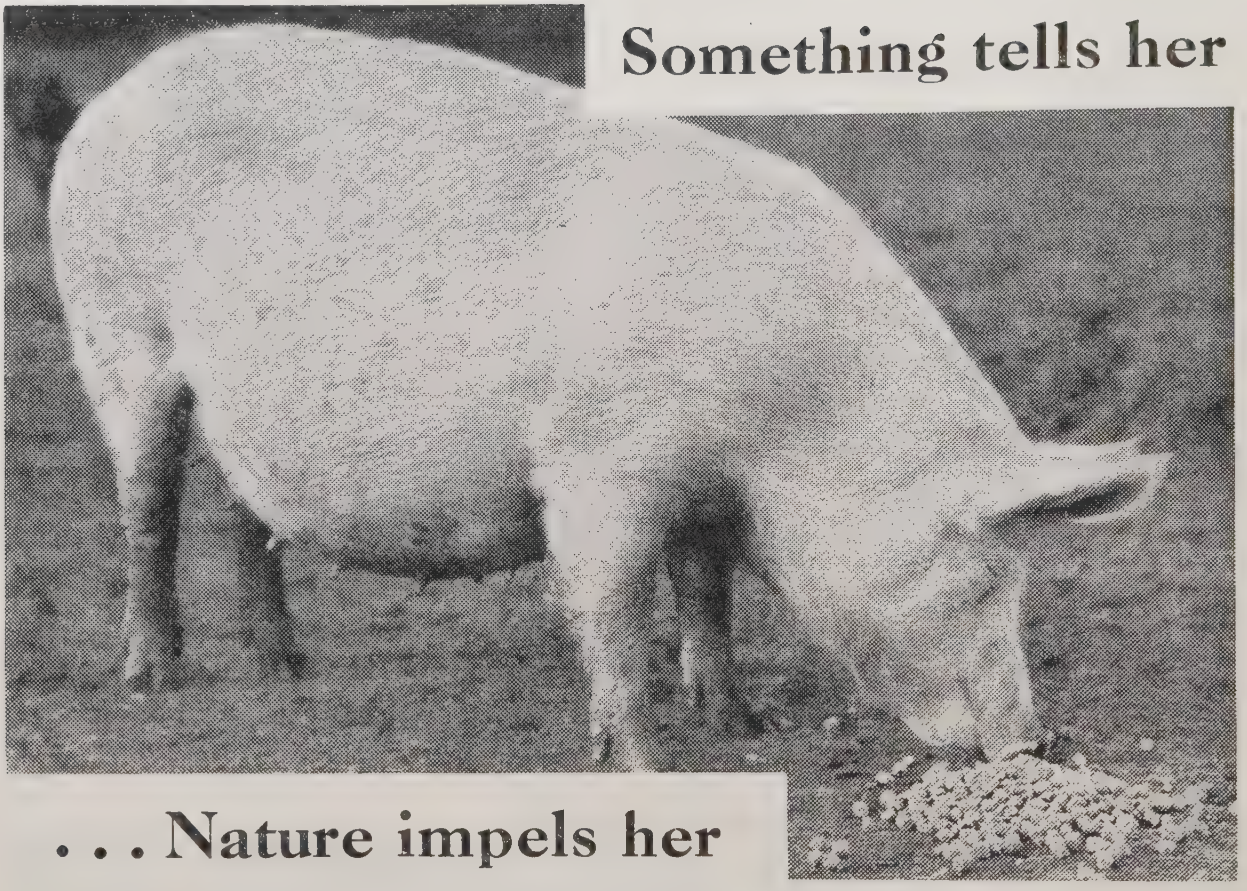

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PP.I.24

# Early Cropping in Nelson

**NELSON Province lies in the north-western corner of the South Island, 41 degrees south of the Equator. Its most northerly extreme, Cape Campbell, has approximately the same latitude as Foxton in the North Island, while Nelson city is on approximately the same latitude as Wellington. Nelson's mild climate is largely responsible for the district's ability to grow peas and potatoes earlier than elsewhere in the Dominion.**

*By*

D. M. MERRY,
*Instructor in Agriculture, Nelson.*

COMMENTING on the province's climate the New Zealand Official Year Book states, "Nelson has a sunshine record which is equalled by but few parts of the Temperate Zones." The rainfall averages 38in. yearly, is well spread throughout the year, and heavy falls are unusual. Much heavier rainfall is recorded westward, especially after crossing the Takaka Divide, separating Tasman from Golden Bay.

The principal area of arable land in Nelson Province is the Waimea Plain. Oats, barley, wheat, seed and canning peas, lucerne, and clover for seed and hay are grown on the plain, besides a miscellany of horticultural crops including fruit, vegetables, and hops.

Nelson has a natural port, which is capable of berthing vessels of up to 10,000 tons and is the chief outlet for the district's produce. Apart from a daily steamer ferry service with Wellington (tri-weekly during winter months), highways connect to Marlborough, North Canterbury, and the West Coast. The railway runs inland for 60 miles to Glenhope, but is yet unconnected to the main South Island system.

## *Early Cropping Land*

Nelson's early cropping land lies along the foothills of a relatively low mountain range forming the eastern boundary to the Waimea Plain; the main west coast highway nearby passes through the settlements of Stoke, Richmond, and Brightwater. The range, the soils of which are reasonably fertile, runs inland in a north-westerly direction, and its slopes face directly to the sun. Proximity to the coast causes air currents to move down the mountain slopes after nightfall and set up a land breeze which makes possible the growing of early crops on a hillside belt rising to several hundred feet above the plain. Higher up it is colder and more prone to frost. Indeed there are times, especially in the vicinity of Richmond, 8 miles out from Nelson, when in the early spring hail showers lie white overnight along the hilltops, and should the mountainous back country be snow covered, a clear night may bring a general and damaging frost, the bane of every early crop grower. Normally snow does not fall on the lower hills, but it is a contingency to be reckoned with occasionally, and, as might be expected, the results to early crops are catastrophic. By far the commonest danger is the so-called black frost. When freezing conditions prevail after the plants are wet with dew or light rain a great deal of damage is done.

A good deal of the hillside is precipitously steep—so steep, in fact, that even hillside ploughing is difficult, and only trusty horses can be used. The amount of cultivation done is, of course, dependent on the steepness. Sometimes where it is impracticable to plough the pea seed is dibbled in after harrowing only.

Several types of plough are used, all hillside models. Certain types turn a short broken furrow, whereas others turn a regular long-mouldboard furrow. These differences are believed to be of some importance. The merit of the short furrow is said to lie in the pockets of soil formed after working and weathering offering a good hold for the broadcast pea seed and the deeper soil there favouring better growth. More working is often done for potatoes, where the completely-turned furrow is quite satisfactory.

The natural grasses on the slopes are danthonia and browntop, which are either burnt off or closely grazed before summer ploughing.

There is a good deal of variation in the soils along the foothills. Those on the higher faces are of a light, porous, rubbly nature and more suitable for peas, while lower are patches of free-working brown loams, and sometimes medium clay loams, which are more moisture retentive and better fitted for potatoes.

Peas are usually the first crop in any rotation, and following ploughing and one or more harrowings the land is then left until after a good soaking rain before the seed peas are broadcast. Should dry weather follow, a

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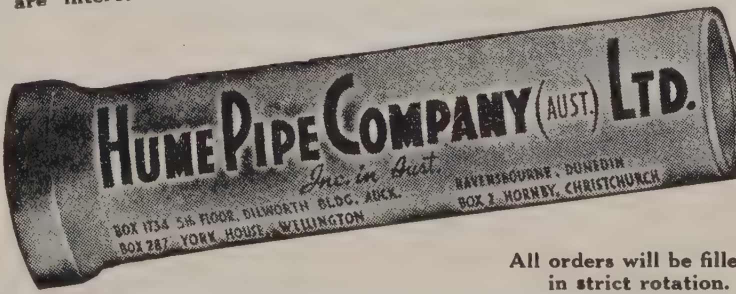
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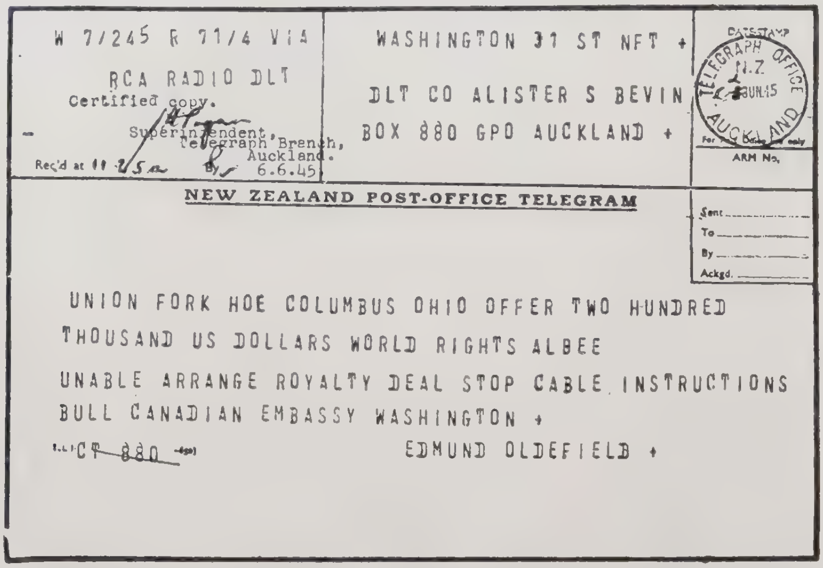

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Modesty precludes me saying much about my own publication, "THE AWAKENING." Over 4,000 copies have already been sold and I have had hundreds of eulogistic letters. Many readers have subsequently purchased up to a dozen copies to give to their friends as presents.

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poor strike may necessitate resowing.

In the past some of the land broken to the plough has carried heavy gorse, and where this has been cleared potatoes have cropped well. In general the steepest faces are resown to grass after one crop of peas, otherwise a common rotation is peas followed by rape, potatoes, rape and to grass, or a second crop of potatoes may be taken. As it is necessary to be continually breaking up fresh land, the area available for early cropping is thus distinctly limited. As might be expected, early cropping calls for land lying to the sun. Aspect is all important. Where the land folds away from the sun's rays there is a marked difference in growth. Individual areas under early crop average perhaps 3 to 4 acres. While no record of the total hillside area under cultivation is available, there is probably upwards of 100 acres in both out-of-season peas and early potatoes. This may not be all planted at the one time, as Nelson peas, as the result of successional sowings, are available throughout the entire year, while early potatoes come in from August onwards.

Contrary to general expectation soil erosion is not troublesome even on the steepest faces, because the naturally rubbly soil drains without gullying or sheet erosion. In consequence it warms up again very quickly after rain and does not normally lie wet.

Below on the Waimea Plain about 400 acres of main season peas are grown, principally for the canning factory, although there is a belt of stony alluvial terrace near Brightwater also well suited for early peas. These are drilled in the conventional manner no later than the end of April, and at least one farmer there is of the opinion that the horse team is to be preferred to tractor cultivation, as the stony ground is left uncompacted, free draining, and warm.

### EARLY PEAS.

Practically only one variety of pea, the Emperor or Greenfeast, is grown in Nelson for canning and picking. It is well received by the trade for both purposes, and there seems little reason to replace it by any other variety. About 2½ bushels of seed are sown per acre, usually on lea country without manure. This avoids rank haulm growth, lodging, and the difficulty of picking over lain crops the five or six times necessary for the "earlies." One picking only is made on the plain for mid-season crops.

### *Sowing*

Sowing calls for some considerable skill to ensure even distribution, and, just as for grass seed, there is a definite technique to be learned. About three throws are made in an uphill direction to every handful of peas. Sowing commences in February and March and extends on through April. The peas are harrowed in and those remaining on the surface are sometimes hand covered. As is readily understandable subsequent growth and yield are markedly influenced by the season. In years of long warm autumns crops may mature before the shortest day of the year, when they fall into the category of "lates," while those picked after June are the true "earlies." Successional sowings are made to spread the period of maturity and harvest. At times four sowings have been made, the last being near the top of the slope. However, as every gardener will know, sowings made at regular intervals may mature weeks apart; generally if the peas have set pods before the onset of cold weather they will mature fairly quickly, otherwise there is a period when they will "hang fire" until warmer weather.

### *Picking and Marketing*

The peas are picked into kerosene or petrol tins, and if pickers can be found, 1/3 is paid per tin, which contains two pecks or 14lb. Ninepence per tin is paid for mid-season peas, and up to £1 is earned daily by some of the women who are most adroit at this work. As early peas grow well up on the hillsides, usually only family labour is available for picking, and this is a major factor limiting the area which can be grown. From the hillside the peas are carried or sledged down and packed in cental bags containing a net weight of about 65lb. for transport to market. In May of this year growers received 1/2 per lb. on consignment in Wellington, where the bulk of the earlies are marketed, whereas up to 2/3 per lb. has been reached in short supply "novelty" demand periods.

First earlies often yield less than 15 bags per acre; later the yield increases considerably, and up to 100 bags have been harvested at the most favourable season. The weather is the deciding factor for profit or loss; insects and birds ravage the seed before it is through, and grass-grub, and later birds, hedgehogs, and field mice take their toll of early sowings. Thus, while the consumer may be paying an apparently luxury price for out-of-season produce, the grower is by no means getting rich quickly. His is mostly laborious handwork, and he has to trudge up the hills to tend and harvest his crop. Some growers indeed have been so discouraged by seasonal vagaries and failures that they have given up early cropping in favour of more orthodox and stable farming.

Peas shipped from Nelson in the winter months, when there is only a tri-weekly steamer ferry service, go forward on Mondays and Wednesdays only; they have to reach the ship's side for loading by 3 p.m. and are normally sold on consignment to one

" it has tailed over 13,000 lambs and has never gone better:

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or other of Wellingon's produce merchants. When cheap air transport is available they may go even further afield to other Dominion metropolitan markets, though at present Wellington is the chief outlet.

### EARLY POTATOES.

The early potato crops are planted from February onwards. Varieties being grown in their order of preference are Arran Chief, Arran Banner, and Aucklander Short Top. These are all good croppers, and the young potatoes lie close around the set. Arran Chief appears more resistant than Aucklander Short Top to blight, which makes its appearance from October onwards. No spraying is carried out. As southern certified seed lines are not available for early planting, the practice has grown up of obtaining the required early seed from crops previously planted on the plain with seed of southern certified origin which has been dug about December and has had 3 months to mature and sprout.

### *Planting*

As a rule whole sets of 2oz. or larger size are put in; cutting in later sowings has in some circumstances been quite satisfactory. Planting is done with the slope, and the tubers and fertiliser are dug in with a hoe or trenching tool. Plantings along a furrow opened by the plough are less usual. The rows are 2ft. to 2ft. 3in. apart and the sets spaced 12 to 14in. apart. This requires 25 to 30cwt. of seed per acre, and the planting of 3cwt. per person daily is good going. The comparative closeness of planting is said to produce a cover of foliage giving some protection in the event of frost.

Various manurial mixtures are used, all being normally at a rate of upwards of 10cwt. per acre, and basically composed of superphosphate, along with sulphate of ammonia or blood and bone. Some growers favour distributing the fertiliser along the surface of rows after planting, and it is worked in later when the sets are earthed. Prior to earthing up some growers may lightly harrow once or more to check weeds.

Until comparatively recently Nelson observed the first Monday in August as a provincial holiday, after the English custom of its observance as a bank holiday. Locally styled as "Spud Monday," this day has become the accepted time for the general planting of early home garden potatoes. Crops so planted mature in late December.

### *Digging and Marketing*

Digging of first earlies commences in August and proceeds through to December, by which time the crops from many later plantings on the flats will be on the market. In one instance last season a crop planted in February on a shady hill face made good growth during the autumn and the potatoes held over to come in in August yielded the grower a handsome return.

The first earlies dug on the foothills in August-September yield 2 to 3 tons or less per acre, and later in November 4 to 5 tons is average, but much heavier yields have been obtained on occasions.

Price control is effective from September 1. The price is pegged at £42 10s. per ton until the end of that month, dropping successively to £30 at the end of October, £20 at the end of November, and £14 at the end of December. There is a considerable incentive to early production, and free-market prices have exceeded £100 per ton. Controlled prices, while assuring the grower of a known return, if the market is available, also encourage digging earlier than might otherwise be the case in order to obtain the highest price. This practice sacrifices yield capacity to earliness, and often many of the new potatoes coming on the market are rather immature. This perhaps is inevitable where the enterprise is risky and one of the prime considerations is the economic return.

**There is no magic in connection with Nelson's ability to produce out-of-season peas and potatoes. Favoured by a genial climate and suitable land, much hard work and many hazards face the producer catering for a high-price market. Not all who toil reap the lucky strike.**

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# STUDIES IN FARM MANAGEMENT

## *Town Milk Supply*

THE production of milk and cream for use in the liquid milk trade in the urban areas of New Zealand is a specialised section of our dairying industry that rightly is being given increasing attention. Though the liquid milk trade is only a small part of the whole dairy industry—probably the herds supplying the liquid milk trade contain about 120,000 cows of the Dominion's 1,750,000 cows—the capital value of the farm property associated with the trade is about £13,000,000. It is not possible to state exactly the total annual value of the liquid milk trade, but it has been estimated authoritatively that the annual value of the milk distributed to consumers of all classes in the four metropolitan areas is not less than £2,500,000.

There is evidence that a substantial increase in the present liquid milk trade is desirable in the interests of good nutrition. The optimum daily consumption per head, as stated by health authorities, is 1¾ pints per day, and according to the findings of the recent Food Conference in the United States of America, a minimum dietary standard of slightly more than 1 pint of milk per head should be used in assessing the sufficiency of diets. According to the New Zealand Official Year Book, the estimated average Dominion consumption per head is only ⅝ of a pint daily.

Dairying that caters for the liquid milk trade has its own special features and problems, some of which are discussed in the accompanying articles. These relate mainly to—

1. Continuous production for 365 days in the year.
2. Greater obligations in respect of the quality of the product.
3. Farm management problems relating inter alia to—
   - (a) more intensive winter feeding of stock, and
   - (b) provision of replacement dairy stock when there is little or no skim-milk available for the rearing of calves.

*—R. P. CONNELL, Fields Superintendent, Christchurch.*

### AN AUCKLAND FARM.

WHEN farming land in an urban district comes on the market the prospective seller seldom fails to extol the possibilities of engaging in a town milk supply in an endeavour to enhance the value of the property, and the proximity to a town is apt to be capitalised in the increased price asked for and paid. Despite the seemingly lucrative prices charged for raw milk, the path of the producer for a town supply is liable to be lined more often with thorns than with roses. Provided that exorbitant prices have not been paid for the land, however, and that conditions are otherwise suitable, even a comparatively small farm can provide an excellent living for the right man. This at any rate is the opinion of a well-known farmer who has had over 20 years' experience in catering for town supply on his farm at Albany about 10 miles north of Auckland.

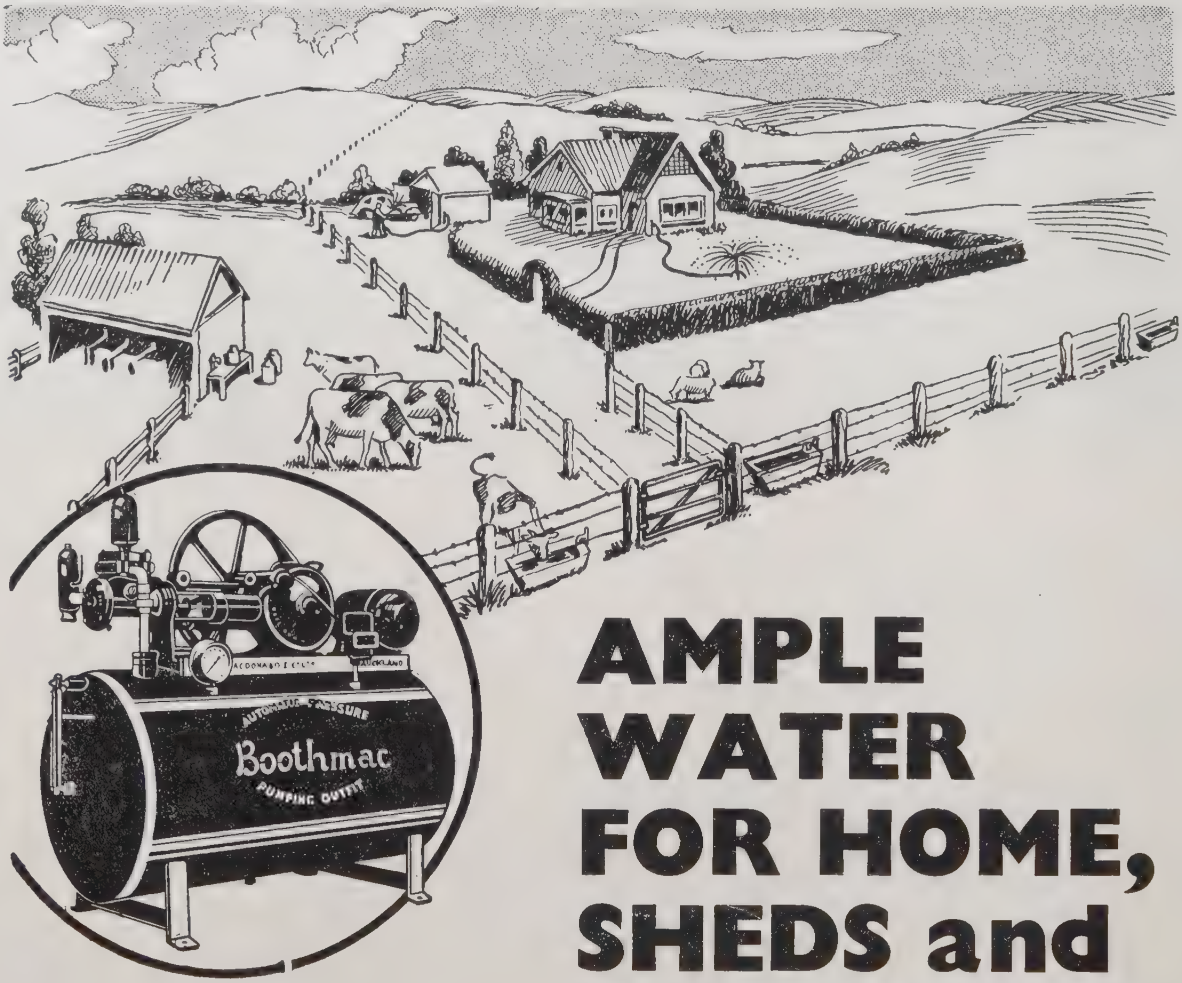
The farm, which was broken out of gorse, comprises 64 acres, varying from a heavy clay to a free-draining clay loam. The natural fertility is fairly high, and though topdressing has been by no means lavish, the fields carry a vigorous ryegrass-white clover-paspalum sward. The land, like most of the land in the district, responds well to phosphates and lime. The owner is a great believer in the value of close sub-division, and the farm has been divided into 18 separate paddocks of approximately 3½ acres each. With a herd of 52 cows, this permits of a concentration of 15 cows to the acre, and gives excellent control of the grazing. Moreover, it also allows of a change of field each day, a factor which appears to have a psychological value to the stock as well as being of noticeable benefit to the pastures.

No horses are kept, as grazing is considered too precious, and it has been customary to arrange for outside assistance with the field work. Although the working of the farm can be carried on with the help of a boy, there is enough work offering to keep a man fully employed, and in view of the exacting schedule and the need for capable supervision at all times, it has been found more profitable to employ a competent man.

The farm is watered from a central bore, which provides an adequate supply at all times. Good shelter from the prevailing winds is provided by a series of seedless barberry hedges and a single-row breakwind of *pinus insignis*. Although the soil is by no means ideal for barberry, there have been few failures, the older hedges being free from gaps and forming a useful stock-proof shelter. It is noteworthy that although now over 30 years old, the pines still provide a good shelter, no doubt largely due to the technique adopted of trimming back half of the shelter belt alternately each year.

### *Relies Entirely on Grass*

Reliance is placed entirely on grass, and no special crops are grown. Ample hay is made each year, however, and special care is taken always to keep about a year's reserve on hand ready for any emergency. While one might have expected that the growing of special crops for supplementary



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feed, though not indispensable, would at any rate be highly profitable for through-the-year milking, the owner contends that in his circumstances no crop is more profitable than good grass. With vigorous paspalum and a farm little affected by drought, summer feed is seldom a problem, while the relatively mild winter allows of sufficient grass growth—supplemented by plenty of good hay—to maintain the cows in good milking condition.

Although it might be possible to increase production by cropping, this would entail the provision of additional equipment, as well as the loss of valuable grazing. Much trouble could also be expected from paspalum in the cultivated ground, and, after a period of cropping, time would again be needed to build up a good paspalum content in the pasture. Taking each of the various factors into account, and believing that on his class of land crops, as well as being difficult to grow are apt to be something of a gamble, the farmer is well content to rely entirely on good grass.

### *Some Special Problems*

While the farming methods do not differ greatly from those adopted on an ordinary dairy farm, the town supplier is confronted with special problems incidental to an all-the-year-round supply of milk. On a small farm, with milk fetching a high price, it does not as a rule pay to rear calves. Consequently, replacements are usually bought in from outside. This to some extent makes it more difficult to build up a high-producing herd, and involves the purchase of "second bests," as few farmers will willingly part with their choicest stock.

### *Moderate Replacement Rate*

The annual replacement rate is estimated at about 15 to 20 per cent., which compares favourably with the 20 to 25 per cent. common with many of the association suppliers. This relatively low replacement rate is attributed to a variety of factors. The farmer lays stress on evidences of good constitution when purchasing, feeds the animals well **all the time**, and does not try to force production unduly. About 8 or 10 cows are sold off each year and replaced with in-calf heifers, the change-over involving a loss of about £5 to £6 a head according to market values.

### *Light Breeds Preferred*

Contrary to what one might expect when the object is milk production rather than butterfat, the bulk of the herd is made up of Jersey cows. The minimum butterfat content permitted is 3.3 per cent., and, as the price is paid on a per gallon basis, it might at first appear to be uneconomical to supply rich Jersey milk rather than that of a high milk-producing breed like the Friesian. Experience has shown, however, that with the heavier breeds pugging of the pastures becomes a serious problem in the winter months, and for this reason the lighter breeds are preferred on this clay soil. If Ayrshires could be as freely bought, they would receive preference over Jerseys; as it is, an endeavour is made to buy the best replacements offering at reasonable prices more or less irrespective of breed.

### *Arranging Calving Dates*

Since the contract with the Milk Suppliers' Association stipulates an increased price for quota milk supplied in the months of May to August, and provides for a penalty clause of 3d. for each gallon less than the agreed quota, an effort is made to arrange calving dates so that the milk supply is as high as possible when the price is high, while still maintaining a supply over the full year to avoid a penalty on the quota. For this reason it is desirable that the cows should calve from January through to June at, say, about four cows each month. A Jersey bull is used to get the cows in calf.

### *Efficient Association*

The milk is collected at the gate by the Suppliers' Association, the quota milk being paid for at the following three rates:—

September 1 to end of January 11½d. per gallon.

February 1 to May 1 1/2½ per gallon.

May, June, July, and August 1/5½ per gallon.

Surplus milk is also collected by the association and sold to the best advantage, the price depending on the consumer demand. The association has proved itself highly efficient in handling the huge volume of milk, and the running expenses amount to only about ¼d. per gallon plus ⅞d. for cartage charges.

### *Pros and Cons*

Taken all round, the prices shown must appear highly attractive to the ordinary dairy farmer. The milk is delivered at the farm gate at 7 a.m. and 5 p.m. as regular routine, when its disposal becomes the problem of the association. There being no calves or pigs requiring attention, this obviates the need for these often unpopular chores, making it possible to devote additional time for work on the farm and to enjoy long, free evenings. Such a simple and straightforward system must appear to many as being almost idyllic.

On the other hand, the milk supplier is tied to a regular schedule for 365 days in the year, and must arrange to maintain production over that period. This entails having the calving dates spread over a long period, which in turn reacts detrimentally on the production yields.

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*"You can rely on 'RELAX'"*

# PRODUCING MILK FOR TOWN SUPPLY

From such herds as this comes New Zealand's town milk supply.

Supplementary fodder such as chou moellier is an essential feature for feeding a town milk supply herd.

As replacements have mainly to be bought in, it will be appreciated that it is no easy matter to show a high herd average and to produce a full quota in the winter months. Like everyone else, the milk producer has troubles of his own. That this farmer at any rate is in some measure compensated for his troubles is suggested by his returns over the past year and his rough estimate of the expenses incurred:—

| Month. | Return for milk supplied. | | |
|---|---|---|---|
| | £ | s. | d. |
| April .. .. .. .. | 75 | 15 | 3 |
| May .. .. .. .. | 80 | 14 | 6 |
| June .. .. .. .. | 67 | 17 | 7 |
| July .. .. .. .. | 58 | 5 | 11 |
| August .. .. .. | 86 | 19 | 0 |
| September .. .. | 85 | 19 | 10 |
| October .. .. | 107 | 7 | 4 |
| November .. .. | 116 | 2 | 6 |
| December .. .. | 113 | 4 | 1 |
| January .. .. | 118 | 7 | 11 |
| February .. .. | 135 | 18 | 11 |
| March .. .. .. .. | 81 | 19 | 6 |
| Sales of calves .. | 26 | 0 | 0 |
| Gross returns . | £1,154 | 12 | 4 |

Though there is a wide variation in the monthly returns, there is no blank month, and even July provides a very useful cheque. As the differential price rates and the penalty clause have operated only since September last, it is anticipated that in future years this monthly fluctuation will be practically smoothed out, the increased price over the winter months compensating in some measure for any decrease in the amounts of milk supplied.

The year's working expenses are estimated somewhat as follows:—

| | £ |
|---|---|
| Labour .. .. .. .. .. | 300 |
| Fertiliser .. .. .. .. | 30 |
| Rates, etc. .. .. .. | 40 |
| Maintenance .. .. .. | 80 |
| Replacements .. .. .. | 70 |
| | £520 |

With gross returns amounting to £1,154 12s. 4d. and expenses involving £520, this leaves the sum of £634, a very attractive annual return considering the size of the farm. Admittedly, properties such as this are hard to find and are apt to be correspondingly expensive, but allowing for interest at 4 per cent. on an approximate capital value of say, £5,500, this still leaves a net return of £414, which, taken in conjunction with a free house and the usual farm perquisites, adds up to a very tidy annual income.

Considering that it entails being tied to a rigid time-table through a long procession of 365 days a year, however, it must be conceded that the money is certainly very well earned.

**That town supply has in the main proved profitable over a period of years is well demonstrated by the fact that in addition to providing a good living for the occupier, this small farm has also furnished all the finance needed to acquire two other valuable farm properties—a tribute alike to its quality and the good management of its owner.**

—*P. S. SYME, Instructor in Agriculture, Warkworth.*

## A CHRISTCHURCH FARM.

DAIRYING for town milk supply is a prominent feature of the work on many farms within a 20-mile radius of Christchurch, and in Rangiora County, in which this specialised dairying is of importance, the conditions approximate in essential features those which obtain in the Christchurch district generally. The trend of development is indicated by the following data from official sources:—

| Year. | | | No. of farm dairies. | No. of cows. |
|---|---|---|---|---|
| 1933 | .. | .. | 590 | 7,973 |
| 1934 | .. | .. | 630 | 8,350 |
| 1935 | .. | .. | 567 | 8,300 |
| 1936 | .. | .. | 560 | 8,244 |
| 1937 | .. | .. | 548 | 8,000 |
| 1938 | .. | .. | 537 | 8,935 |
| 1939 | .. | .. | 510 | 9,000 |
| 1940 | .. | .. | 505 | 9,000 |
| 1941 | .. | .. | 514 | 8,860 |
| 1942 | .. | .. | 508 | 9,522 |
| 1943 | .. | .. | 497 | 9,364 |
| 1944 | .. | .. | 540 | 10,656 |

Only figures indicative of the movement of population in the Christchurch metropolitan area are available, the urban area of Lyttelton being excluded. They are:—

| Year. | | | | Population. |
|---|---|---|---|---|
| 1936 | .. | .. | .. | 129,500 |
| 1941 | .. | .. | .. | 133,300 |

The foregoing figures disclose that while the size of herds being milked for city supply fluctuates, it has shown a general tendency to increase. In its bearing on cost of production on the farm this tendency should be good: in general there would be more economical production in the case of herds averaging approximately 20 cows as in 1944 than in the case of herds averaging approximately 13 cows as in 1934.

Broadly, the working of Mr. R. E. Gillman's farm is illustrative of the working of a well-run dairy farm with all-year-round supply of milk to a Canterbury urban area as its main objective. However, the housing of the cows as described is a departure from standard practice: housing along the lines indicated is carried out on about 20 dairy farms registered for town supply in the Christchurch district; on about another 80 farms feeding in buildings as distinct from housing is carried out during the winter, while on the remainder of the 540 registered dairies outdoor feeding is standard practice. Among farmers there is difference of opinion about the advisability of departure from this standard practice. The results obtainable from housing or indoor feeding depend to some extent upon the conditions on individual farms—when the soil is wet or heavy the benefit would be much greater than in the case of light dry soils; again the efficiency of indoor housing and feeding would vary as the farmers themselves vary in efficiency and also according to the standard of the buildings used in housing the stock.

The Rangiora County, with 55,000 acres of occupied land, has as its northern boundary the Ashley River, and its southern boundary is a little north of the Waimakariri River. The sea is its eastern boundary. There are a wide range of soil types in the county, varying from rich river silts and loams to clay down-land and light shingly flats. The topography of the area is flat to rolling. The townships of Woodend and Waikuku and the town of Rangiora are situated in that part of the county in which dairying is commonly practised, while the township of Cust is situated at the western end of the county in the mixed and arable farming area. It is with the predominantly dairying land, which is within a 25-mile radius of Christchurch, that this article is mainly concerned.

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# THE MILKING SHED AND FEEDING SHED

The Agricultural and Pastoral Statistics for the 1942-43 season show that there were 4,160 dairy cows in milk, 1,579 pigs, and 42,677 sheep in the Rangiora County in that season. Supplementary fodder, hay, and other crops grown in that year were:—

| | Acres. | | Acres. |
|---|---|---|---|
| Kale and chou moellier .. | 380 | Potatoes .. | 380 |
| Rape .. .. .. | 1,516 | Linen flax .. | 189 |
| Swedes .. .. | 53 | Grasses and clovers cut for hay or silage . | 2,220 |
| Turnips .. .. | 957 | Lucerne cut for hay or silage . | 617 |
| Mangolds .. .. | 59 | | |

The crops which are mainly grown in the dairying belt—chou moellier, mangolds, and lucerne—do not form a large proportion of the total supplementary fodder crops, but the total area in the belt is not a large proportion of the total county area.

The average yearly rainfall at Rangiora is under 30in. and is not at all evenly distributed throughout the year.

Of the dairy farms in the area there are three main classes: (a) Those producing milk entirely for town supply and with a high proportion of winter milk; (b) those milking mainly for town supply but which do not undertake a large amount of winter milk production, with the consequence that part of the summer supply goes for butterfat; (c) those milking entirely for butter factories. The farm considered in this article belongs to the first-named class, namely a specialised dairy farm for the production of milk for town supply throughout the year. Such a programme calls for a different type of management from that on the ordinary dairy farm. In regard to herd management, it is necessary to arrange as nearly as possible for two main calving periods—one in the autumn and one in the spring. Feed production must be arranged to allow of an even disposal of good-quality feed throughout the year.

Mr. Gillman's farm is three miles from Rangiora in the Coldstream-Waikuku area. The land is mainly a fertile soil of the heavy silt loam type. Low-lying portions are liable to "pugging" if stocked to any extent in the winter. Mr. Gillman took over this farm of 65 acres 12 years ago. In addition to the homestead block, he now farms 8 acres of medium land, all in lucerne, and 15 acres of a light sandy loam of which 6 acres is in lucerne.

Mr. Gillman's main aim in farming this land is the production of as even and as plentiful a supply of milk as possible winter and summer, to attain which he decided to operate a pedigree Friesian herd, culling heavily on a basis of herd testing until he had raised production to a high level. At the same time he realised the necessity for maintaining throughout the year ample supplies of good-quality food for the herd's requirements.

## *Livestock and Labour*

The farm carries 38 milking cows and heifers, 7 one- to two-year heifers, and 7 calves, one bull, and one horse. No pigs or sheep are carried. The original carrying capacity of the 65 acres was 25 cows, 4 heifers, and one bull.

The labour running this farm is a family unit. In addition to the permanent labour of Mr. Gillman, all tractor work on the farm is done by his 20-year-old son. The tractor employed has been found a suitable type for the size of farm. In the shed Mrs. Gillman assists at both milkings. For the harvesting of lucerne a system of exchange labour with the neighbouring farms satisfactorily enables the seasonal work to be coped with. The provision of labour-saving machinery has made this comparatively limited amount of seasonal labour possible.

## *Farm Buildings*

In addition to the farm-house there are the implement shed, dairy and milking shed, and a feeding shed. The dairy and milking shed have been constructed on modern and efficient lines according to the suggestions and requirements of the Stock Inspector, Department of Agriculture, Christchurch. At the time they were built the cost of this dairy and three-cow plant was £300. The feeding shed was built 6 years ago at a cost of £150 to allow for the carrying of 15 milking cows from June to August. Concrete runways connect the feeding and milking sheds.

## *Implements and Equipment*

The main equipment on the farm is for the harvesting of the lucerne, for which a tractor with power mower, hay press, hay stacker, hay sweep, siderake, tedder, dray, and lorry are used. A light farm truck, originally bought for milk cartage, is now found necessary for various jobs on the farm. The main cultivation implements are a 2-furrow plough, Cambridge roller, discs, drill, and harrows.

The shed water supply is pumped by electric pump at the shed from a bore to a tank, which supplies the shed and several troughs in the paddocks, with a reticulation of about 10 chains of piping. The remaining paddocks are supplied by two running creeks.

Apart from the indoor feeding shed for winter milkers, the main provision of shelter for dry cows and other stock consists of gorse hedges. A long belt of *Cupressus macrocarpa* is still in the early stages. There is a pine plantation at the far end of the farm.

## *Production Increase*

In the first year of farming the average yield of butterfat per cow

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was 252lb.; in 1943-44 it was 376lb., which represents a 50 per cent. increase per cow. In the season 1937-38 25 cows produced 15,200 gallons of milk, an average of 600 gallons of milk per cow. This has been increased until in the dry 1943-44 season 33,200 gallons of milk containing 14,285lb. of fat were produced, an overall daily average of 90 gallons of milk, and an average of 874 gallons per cow, with a herd of 38 cows. During the three winter months for the last three years the production of a 70-gallon daily average has been maintained.

There have been many high-producing cows in the herd, one, Melrose Model Echo Sylvia, still holding the New Zealand Government Official Herd Testing record with 22,863lb. of milk and 744lb. of fat in 305 days—an average of 75lb. of milk daily. However, although such producers are naturally encouraged, the real aim has been to obtain a high uniform standard of production throughout the herd.

## *Herd Testing and Improvement*

Mr. Gillman's herd has been tested continuously for 11 years. At first it was necessary to buy replacement stock as well as rearing replacements, but now that the herd has been built up to a high level of performance culling on account of low yield is not so common, with the result that generally there is a surplus of heifers reared, some of which are thus available for sale. The first bull used proved an unfortunate choice, since he left low-testing calves, but subsequent sires have considerably raised the performance of the herd, as the production figures show.

In the analysis of the herd-testing averages for the 1943-44 season the following figures show the distribution of production (three first-calving heifers milked for only part of the season being omitted from the official figures).

| | |
|---|---|
| Percentage of herd below 250lb. of fat .. | 11.4% |
| " " " between 250 & 300lb. fat | 5.7% |
| " " " " 300 & 400lb. fat | 37.2% |
| " " " " 400 & 500lb. fat | 34.1% |
| " " " " 500 & 600lb. fat | 8.6% |
| " " " above 600lb. fat .. | 3.0% |

**The above figures show a remarkably good herd average. Out of the total of 35 cows only four averaged less than 250lb. of butterfat, while 16 cows averaged more than 400lb. of fat. A comparison with the year 1937-38 shows that in that year only 16 per cent. of the herd averaged 400lb. of fat or more, whereas in 1943-44 46 per cent. averaged more than 400lb. of fat. Figures for the 1943-44 season show that Mr. Gillman's herd was the highest in the Rangiora Herd Testing Group, with an average of 376lb. fat per cow and an average butterfat test of 4.2.**

## *Herd Management*

**(a) Calving Dates:** Mr. Gillman's aim is to have two main calving periods, one in May-June, and one in August-September. He does not favour July calving on his farm, although it may be desirable on farms supplying butter factories. Since a good proportion of the herd is required to calve in May to June, a big number of cows calving in July does not spread the milk production sufficiently. It would also mean that the winter feeding shed would not accommodate all the cows in milk in July-August.

In 1943-44 the percentage of the cows calving on the farm in the various periods was as follows:—

| | |
|---|---|
| January .. .. .. | 3% |
| March to June .. .. | 31% |
| July .. .. .. .. | 3% |
| August-September .. | 38% |
| October-December .. | 25% |

Although it is normally desired to obtain the calving of the herd almost entirely in the May to September period, inability to do so is experienc-

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ed on most farms. While it is realised that cows calving in the period from October to February do not as a rule reach the production of which they are capable, nevertheless such cows are of considerably more value on a town milk supply farm than on a factory-supply farm. However, if it is evident, for instance, that a cow will miss the autumn period, the farmer's aim is to hold her over so that she will calve in the spring, or vice versa.

(b) **Disease and Mortality:** The usual troubles are experienced in the herd. A good proportion of clover in the sward, a common feature of the Coldstream area, entails a certain amount of trouble from "bloat," deaths from which, however, are not at all common, though the only mortality in the 1943-44 season was from this cause. Milk fever and mastitis occur occasionally, though they are not common.

(c) **Feeding Management:** During the late spring-summer period grass paddocks are fed off for from two to three days each. In a normal season feeding out is not required till the end of April. From the end of April till June soft turnips and lucerne hay are fed out. From June till well on in the spring chou moellier or silage and lucerne hay are fed until grass growth again provides sufficient food for the herd. There is generally no necessity for extra feeding out during the summer on this land, but in an exceptionally dry summer green lucerne may be cut and carted out. Dry stock are carried in the winter on the light land where supplementary feeding can be carried out.

(d) **Shed Feeding:** During June, July, and August 15 cows are housed in the feeding shed every night, but if the days are favourable, they may be allowed out in available paddocks. Should the weather be unfavourable, they are housed all the time. Hay is fed to them in feeding racks, chou moellier and silage in a big feeder, and any concentrated foodstuffs in boxes. The advantages of shed feeding are claimed to be as follows:—

1. There is no waste of hay or other feed fed to the herd in the feeding shed, whereas in paddock feeding up to 50 per cent. of the hay may be spoiled or tramped into the ground.
2. Wet land is not "pugged" up in the winter months. Consequently pastures are conserved and spring growth is earlier.
3. The cows are kept warm and dry, with the consequence that they are able to make more use of available food for milk production than for the maintenance of body temperature. Mr. Gillman claims that cows fed in the shed come through the winter in very good condition in comparison with cows kept outside.
4. In shed feeding each cow receives a proper allocation of food.
5. An increase in winter production, which sets the winter quota, allows of a corresponding advantage in price in the summer.

**Mr. Gillman contends that not only is the milk production during the actual winter months much greater with indoor than with outside feeding, but also that the cows fed indoors will maintain production during the spring flush period, whereas the others have dropped their production to such an extent that they are unable to pick up again in the spring. As a result of this Mr. Gillman claims that the initial cost of the shed has been more than returned to him already in the six years of its use.**

The feeding shed is cleaned daily. The bedding straw and solid manure are shovelled into a cart and taken to a manure heap, the manure being used as required on the land where the chou moellier crop is to be grown. The cleaning out of the feeding shed takes approximately half an hour daily. As with most feeding sheds in the Christchurch area, no use is made of the liquid manure, which in this case is allowed to drain away.

(e) **Bought Foodstuffs:** If the winter is very severe, bran may be fed to the milking cows. This, with the exception of stock licks, is the only concentrate or other foodstuff bought.

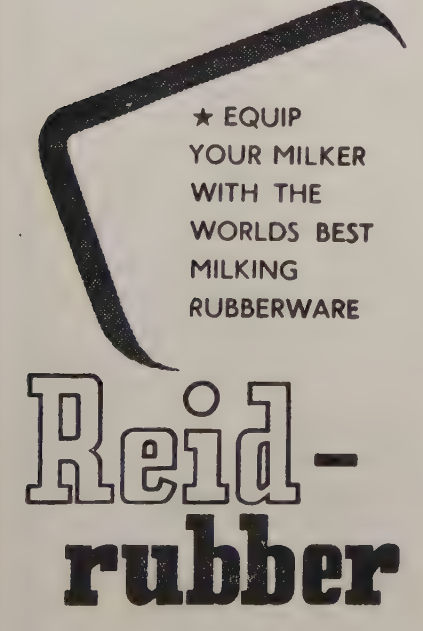
(f) **Rearing of Calves:** Whole milk is fed to the calves for the first six weeks, and in the following six weeks the whole milk is gradually watered down till at the end of three months no milk is used.

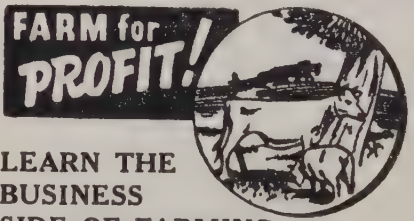
## *Cropping Practice*

(a) **Lucerne:** The most important crop on the farm, occupying a total area of 15 acres, is lucerne, from which 60 tons of hay, i.e., 1,800 bales, and 30 tons of silage are produced yearly. This food is all high-class and suitable as a milk-producing food, as well as containing roughage, and has been largely responsible for maintaining winter milk production, and thus helping to bring about an overall increase in herd production.

For the establishment of a stand of lucerne care is taken in the first place to see that preparatory cultivation results in a fine and firm seed-bed. The ground receives one ton of lime previous to sowing. The inoculated seed is drilled one way at 15lb. to the acre in January. The manure is not sown in direct contact with the seed. As a rule on this land a stand sown at this time will be ready for a light cut in the late autumn.

From four to five cuts are taken from established stands each year, the first being made into silage and subsequent cuts into baled hay. This season one cut was fed out green, so that in addition to 1,800 bales of hay





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and 30 tons of silage, there was this extra weight of green lucerne.

(b) **Soft Turnips:** In order to provide succulent feed in the late autumn-early winter, a small area of soft turnips is grown each year. In the past season one acre of the Imperial Green Globe variety was sown at the end of November at half a pound to the acre in 14in. drills. The crop is used from the end of April to the beginning of June.

(c) **Chou Moellier:** Chou moellier is grown each year for the provision of succulent feed during the winter. Last year 5 acres were sown at the end of October in 21in. drills at 2lb. to the acre. When obtainable up to 5cwt. of superphosphate to the acre is sown with this crop, but at present manuring is possible only at the rationed rate. The yield normally expected is from 30 to 40 tons per acre. The crop is used from the beginning of June onwards, and has proved most reliable for yield and for quality.

### *Pasture Management*

(a) **Pasture Establishment:** It is the aim on this land to maintain a good sward as long as possible, but where renewal is necessary one or more crops of turnips and chou moellier are taken preparatory to the spring sowing of pasture. The grass seed mixture used by Mr. Gillman is: 2 bushels certified perennial ryegrass, 7lb. of seconds of white clover, 2lb. of red clover.

This mixture is broadcast in the spring with 2cwt. of superphosphate when that was obtainable, but with the regulation amount at present. This heavy land retains the moisture well, so that it is possible to obtain good results from broadcasting. The comparatively heavy seeding is also a help in this respect. During the past season a light sowing of oats was made with the grass, resulting in a crop with an estimated yield of 15 tons of chaff.

(b) **Topdressing and Liming:** Half the farm is limed every year with half a ton to the acre. This means that the whole farm is limed every two years. The whole farm was topdressed each August with superphosphate at 2cwt. to the acre when that amount was available. The present ration is used to the best advantage.

(c) **Hay:** Because of the area in lucerne, grass hay is not usually saved, but in the past season a paddock of 7 acres was available for this purpose and was made into hay. Because of the favourable season, a further area of 8 acres of red clover was harvested for hay.

(d) **Seed Crops:** In most seasons seed crops are not saved on this farm, but when this practice happens to fit in with the feed position such crops may be harvested. White clover does very well on this land, and in favourable seasons it is possible to obtain good crops of seed. This is the only crop on the farm which is not directly connected with the production of feed for the cows.

(e) **"Topping":** During the spring, when the pastures are growing at a greater rate than that at which they are consumed, the mower is used to deal with surplus rough growth. This practice maintains an even growth at a green stage most suitable for feeding by stock. In addition, "topping" helps to reduce the growth of weeds such as Californian thistle and to prevent their seeding.

—*P. R. BARRER, Instructor in Agriculture, Rangiora.*

## TWIN CALVES

Since the article on page 113 of this issue, "Twin Calf Research at Ruakura," was prepared for publication the requirement of twin bull calves has been filled. Heifer twins are still urgently required, however, and farmers with what appear to be identical twin heifers are asked to make them available to the station.

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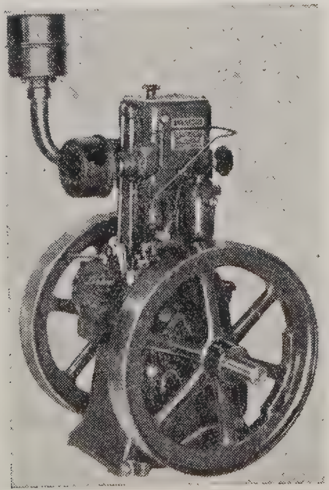

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# Lucerne

LUCERNE is a forage crop of such outstanding merits over a wide range of conditions that it should be used much more freely in New Zealand farming than is the case at present. The area under lucerne in the Dominion is relatively small, the statistical returns for the past 16 years being as follows:—

| | Acres. |
|---|---|
| 1927-28 | 29,257 |
| 1928-29 | 30,808 |
| 1929-30 | 31,690 |
| 1930-31 | 32,561 |
| 1931-32 | 34,867 |
| 1932-33 | 35,370 |
| 1933-34 | 37,350 |
| 1934-35 | 39,087 |
| 1935-36 | 40,857 |
| 1936-37 | 38,802 |
| 1937-38 | 38,691 |
| 1938-39 | 37,023 |
| 1939-40 | 39,614 |
| 1940-41 | 41,665 |
| 1941-42 | 42,211 |
| 1942-43 | 42,842 |

This is in marked contrast with many countries where the area in lucerne has been trebled over the same period.

## *New Zealand Experience*

Experience with lucerne in New Zealand has extended over very many years. It has covered a wide range of conditions, and it has been sufficient to provide reliable evidence that more extensive use of lucerne is well warranted throughout the greater part of the Dominion. At times authorities seem to incline to the belief that lucerne is suited only for relatively dry climatic conditions, such as would occur, for example, in localities with less than 30in. of annual rainfall. This belief that the usefulness of lucerne is restricted to relatively dry conditions probably is partly due to the fact that the merits of the crop are apt to be particularly emphasised under dry conditions. For instance, when droughty conditions prevail in Canterbury, Marlborough, or Hawke's Bay, then it is that the special value of an area of lucerne becomes particularly apparent, for under such conditions it is likely to be the only crop making fresh vigorous growth. But New Zealand experience has definitely shown it is unsound to hold that the use of lucerne should be restricted to the drier farming areas. In proof of this it need only be mentioned that for years lucerne has given markedly profitable returns in parts of South Taranaki, and that highly-profitable areas are to be found in parts of the Auckland and Wellington Provinces in which the rainfall is well in excess of 30in.

New Zealand experience has further shown conclusively that lucerne is not at all as exacting in its requirements as some seem to believe. Indeed, it has been grown successfully on practically all types of well-drained soils except peaty soils.

Our experience in this connection does not differ from that of other countries. As evidence of this we find Wm. Lawson in the "Journal of the Ministry of Agriculture" (England) saying: "Lucerne is suited to a wide range of soils; drainage is most important, and a well-drained soil and subsoil are absolutely necessary." Again, Bulletin 1283 of the United States Department of Agriculture, states: "The wide distribution of alfalfa (lucerne) in the world indicates a remarkable adaptability to climate and soil."

## *Valuable Features*

The excellence of lucerne as a forage crop arises from a combination of factors, including its high yield, high nutritive value, reliability during crucial seasons, low cost of production, and its capacity to improve soils.

**High Yield.**—Over a wide range of conditions in New Zealand lucerne suitably managed will provide three to five "cuts" annually for a series of years. Each cut will contain on the average from 5 to 7 tons of green forage per acre. Hence an acre of lucerne will yield annually in the vicinity of 25 tons of green forage. Frequently the annual yield is in excess of this. As 25 tons of green forage represents a yield of about 6½ to 7 tons of hay per acre, the annual production of lucerne is high.

**High Nutritive Value.**—Investigational work in New Zealand agrees with similar work overseas in showing that the lucerne herbage is exceptionally nutritive, and that it is especially rich in those substances most apt to be lacking in the rations of stock, particularly of the highest-producing animals. It is rich in phosphates, lime, and protein, all of which are of practical moment in animal production and particularly in body-building. The nutritive components of lucerne are also highly digestible, especially when the crop is utilised before it has become woody. Hence, green lucerne is very valuable in dry seasons during late summer and autumn, when other succulent material is scarce, to pro-

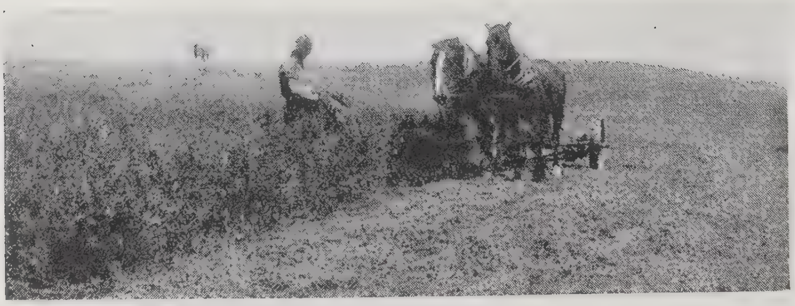

*Fig. 1.*—**Lucerne is a high-yielding crop producing from 5 to 7 tons per cut.**

vide the necessary fresh digestible material required by cows in milk. Lucerne hay, because of its high nutritive value, may also be suitably used to supplement feeds which are inferior or low in their content of substances in which lucerne is relatively rich. For example, lucerne hay and roots may be made to constitute a well-balanced ration, the lucerne supplying the deficiencies of the roots.

**Reliability During Crucial Seasons.**—One of the most valuable features of lucerne arises from the fact that established lucerne, because of its deeply-penetrating root system, is well fitted to withstand periods of drought. Hence, lucerne may safely be relied upon to make vigorous nutritive growth when practically all other crops fail. Lucerne is outstanding in respect to the quantity and quality of its yield, but if it were not so, and if it were only normal in these respects, its reliability during crucial seasons would be a weighty factor in its favour in comparison with other forage crops that compete with it in popular usage. One is more likely to undervalue than to overvalue the reliability of lucerne during crucial seasons.

The relative values of a lucerne crop which may be relied upon for forage during unfavourable seasons and other crops which may not be so relied upon cannot be ascertained merely by comparing the crops in respect to the annual yield of nutritive matter. Hence, even if it were true to say that an acre of, say, grass, would under certain circumstances produce annually as much nutritive matter as an acre of lucerne, it would not follow necessarily that the products of the grass and of the lucerne were of equal cash value. The reliability of the lucerne during critical seasons would almost always swing the balance in its favour.

**Low Cost of Production.**—Forage from lucerne is ordinarily characterised by low cost of production. Low cost arises as the combined effect of three factors—the heavy yield of the crop, its reasonably low cost of establishment, and its relatively long life as a producing unit.

The matter of yield has already been discussed. For some obscure reason it is frequently assumed that it is a very costly matter to establish a crop of lucerne. In view of all the facts it is difficult to know why this idea is held. Under ordinary circumstances, apart from the cost of lime, it should be no more expensive to establish an acre of lucerne than to sow down the same land in permanent pasture. The preparatory cultivation and manuring needed for the one would serve equally well for the other. The only difference would be in respect to cost of seed, and 15 or 16lb. of lucerne seed is not substantially different in cost from the pasture seeds for an acre.

Normally lucerne lasts as a profitable crop for many years—in fact, at times it becomes practically permanent. But should its life be limited to five or six years, as sometimes happens, it will even then usually have proved a handsomely profitable proposition. This is because the initial cost of establishment, when spread over so many years

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of good production, represents but a slight overhead charge on the gross returns.

**Capacity to Improve Soils.**—The fact that lucerne, being a legume, has the power of utilising the nitrogen of the atmosphere is a feature which commends it. This fact means that usually lucerne, instead of calling for the use of expensive nitrogenous manures, actually builds up the content of nitrogen in the soil. This, together with its deeply-penetrating root system, means that lucerne tends to build up rather than to exhaust soil fertility.

## *Soil and Situation*

Deep, fertile, open, well-drained loams are undoubtedly best for lucerne. On account of the deep habit of its root system lucerne does not thrive on a soil which because of bad drainage or impervious subsoil does not allow of deep root penetration. Good surface drainage and under-drainage are both necessary. Land selected for lucerne should be either of high productivity naturally, or made so artificially by the application of suitable dressings. The marked success which characterises lucerne in Central Otago may definitely be linked with the fertility of the soils.

In selecting land for lucerne it should be remembered, also, that lucerne is not well fitted to battle against weeds in its early life. Hence it is not advisable to select land which is known to be infested with seeds of annual weeds, or with parts of twitchy perennial weeds, unless these have been weakened by previous cultivation or cropping.

Because of the injury weeds may cause lucerne in its early delicate stages, it is at times good practice to select for a new area land which has been down in grass for many years, and to plough it deeply once only. A preliminary skim ploughing, or alternatively, a severe discing, to secure disintegration of the turf may often with advantage precede the deep ploughing, but a second deep ploughing is inadvisable, because it would bring to the surface again the numerous weed-seed population which was buried by the first ploughing and which will remain dormant and harmless provided it is not brought back to the surface. Apart from weed considerations, the establishment of lucerne on a soil freshly broken up from old pasture is at times of advantage because such a soil possesses a certain amount of accumulated fertility likely to be of value to the lucerne. A pasture infested with twitchy weeds should as a rule be avoided when it is intended to sow lucerne immediately after grass.

It is almost courting disaster to sow lucerne on land which recently has been under the plough unless the crops preceding the lucerne were kept free from weeds, or unless some way of freeing the land of weeds, such as suitable cultivation, has been adopted.

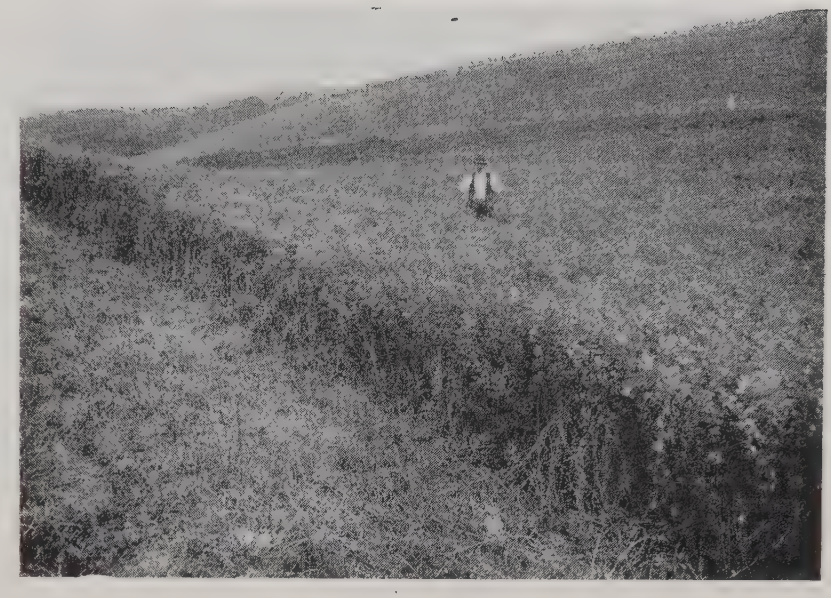

*Fig. 2.*—A typical lucerne crop.

Provided lucerne can become reasonably well established it will frequently battle successfully even against persistent vigorous weeds. For instance, at times lucerne successfully combats Californian thistle, but for this to happen the thistle must have been weakened sufficiently by previous cultivation to allow of the satisfactory establishment of the lucerne.

On very light soils deficient in humus it may be advisable to precede lucerne by a crop such as lupins, red clover, tares, or oats, which, used for green manuring, builds up the soil fertility.

Because of its better surface drainage, land which is slightly undulating is at times preferable to that which is quite level. It is also of value to have a lucerne field sheltered from the prevailing wind.

## *Preparation of Seed-bed*

Lucerne seed being relatively small the preparation of the seed-bed becomes of prime importance. To enable the seed to be sown at a uniform depth and not too deeply, a fine, firm seed-bed is necessary. To obtain this a liberal amount of preparatory cultivation, commenced well ahead of the time of seed sowing, must be carried out. Fortunately, the cultivation which will most readily produce a suitable soil tilth will also tend to destroy weed seedlings that develop on the surface layer of the soil during the period of preparation.

If lucerne is to follow old pasture it is usually advisable to skim plough the land in the autumn or early winter, and to plough the land in the late winter or early spring to a depth of 5in. or 6in. For this deep ploughing, if autumn ploughing has not been carried out, it is as a rule advantageous to use a skimming attachment designed to remove the surface slice and place it in the open furrow. This not only buries surface weed seeds, but also assists in the production of the desirable firmness in the seed-bed. Where lea land has been ploughed the furrow slices should be rolled with a Cambridge roller to ensure satisfactory consolidation to a reasonable depth. Subsequent preparatory cultivation should be fitted to produce a fine, firm seed-bed without disturbing the original surface layer.

## Radio Broadcasts

RADIO talks to farmers will be given from Station 1YA, Auckland, at 7.15 p.m. on the following dates:—

September 3.—"Young Farmers' Club Session," to be given by a member from the King Country clubs.

September 10.—"Control of Cress in Pastures in the Bay of Plenty," by Mr. A. V. Allo, Instructor in Agriculture, Department of Agriculture, Tauranga.

September 17.—"Why the Farmer Should Use Certified Seed," by Mr. J. H. Claridge, Seed Certification Officer, Department of Agriculture, Wellington.

September 24.—"Young Farmers' Club Session," to be given by a member from the Eastern Bay of Plenty clubs.

When lucerne is to be sown in land not newly broken out of pasture the previous crops should be fitted to minimise the danger of weeds. Over wide areas mangolds or potatoes followed by a green crop may be utilised to leave the ground in suitable condition for lucerne. To obtain this result the root crop must be kept thoroughly clean, and it is desirable that the following crop, such as rape, kale, oats, or barley, with or without tares, used as greenfeed, should be a heavy one, as a result of liberal seeding and manuring, in order that it may smother any weeds that appear. Such a crop would need to be consumed early enough to admit of ploughing of the land in October. As in the case of lea land, the purpose of cultivation subsequent to ploughing should be the production of a fine, firm seed-bed. As a rule, for several weeks prior to seeding, all land being prepared for lucerne should be frequently cultivated to a depth of about 3in. Such cultivation brings batches of weed seeds to the surface, where they germinate and are then easily destroyed by the following cultivation. Further, such cultivation keeps the land bare of vegetation, the presence of which might lead to the eggs of the grass-grub being deposited on the land to the eventual detriment of the lucerne seedlings.

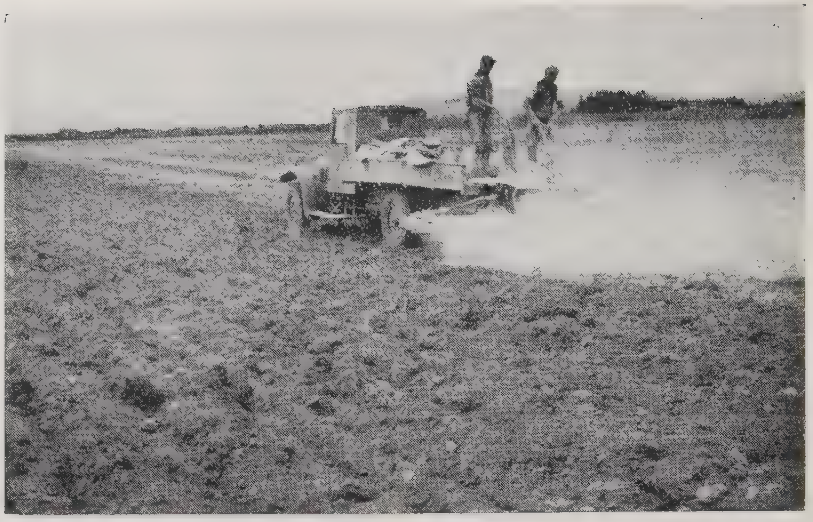

*Fig. 3.*—Carbonate of lime being applied at the rate of 1 ton per acre before the final cultivation of the land.

## *Liming*

Probably no other crop responds so well as lucerne to a liberal supply of lime in the soil, and it is safe to assume, unless there is definite evidence to the contrary, that profitable returns will be obtained from liming land for lucerne. Central Otago is an exception to this rule, and there liming for lucerne generally is not justified.

Lime may as a rule be applied with advantage before the final cultivation preceding seed sowing. It is customary to apply about 1 ton of ground limestone to the acre, but smaller amounts are also used. If price warrants it, or if cost of transport is substantial, burnt lime used at half the above-stated rate may suitably replace the ground limestone.

In many places periodical liming of established fields of lucerne is considered advisable, and there is a tendency to favour dressings of a few hundredweights per acre at relatively frequent intervals instead of dressings of a ton or more at longer intervals.

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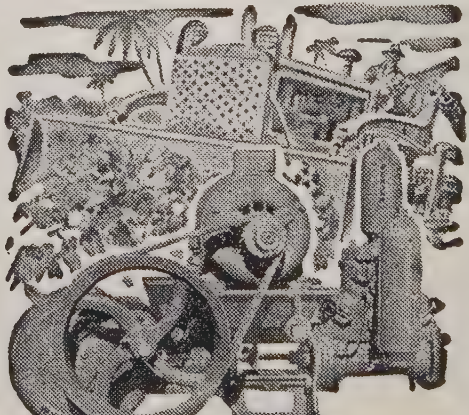

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## *Sowing the Seed*

To secure the required firmness of seed-bed the land should as a rule be rolled prior to seeding, but it may be necessary to roll more than once.

Under cold conditions vigorous development of seedlings does not occur, so as a rule there is nothing to be gained by early sowing while the soil is still cold. Generally, best results are obtained by sowing during the latter part of November or December. At times in favourable seasons really good results are obtained by earlier sowing, but there is as a rule no justification for taking the risk, unless it is expected that dry conditions will be experienced in the late summer before a crop sown late in November or in December has become securely established. At times autumn sowing is practised. One reason for autumn sowing is the avoidance of the competition of annual weeds which germinate in the spring. Another is the avoidance of the risk of damage due to a dry summer spell while the crop is still in the seedling tender stage. While such special considerations may justify autumn sowing, generally the results from it are not as good as from November-December seeding. Whenever autumn sowing is adopted it should be carried out as early as possible, so as to admit of the development of strong plants before the dormant season of the plant commences.

Over wide areas good results are obtained by sowing the seed at the rate of 12lb. to 18lb. per acre through every coulter of a grain drill. By drilling half the seed in one direction and the other half across the other way any misses are avoided, and a very even stand usually results. The amount of seed used needs to be increased when the tilth of the seed-bed is poor. Drilling ensures the sowing of the seed to a more uniform depth than broadcasting; the latter, however, usually gives good results, and calls for the use of a slightly larger amount of seed. The seed should not be sown at a greater depth than 1in., and if broadcast it may be covered by lightly harrowing it, a brush harrow being suitable for this purpose.

The merit of the Marlborough strain of lucerne has been established, and it may be generally recommended. Most striking claims are at times made in respect to other strains of lucerne, but conclusive evidence to substantiate such claims has not been submitted.

## *Inoculation*

Many of the past complete or partial failures with lucerne are now known to have been due to absence from the soil of a particular micro-organism with which lucerne collaborates in an important manner essential to its thrifty development. There is no way which could be used in farm practice of discovering, before growing the crop, whether the soil is inhabited by sufficient numbers of these micro-organisms. Hence, although the organism is present in some soils in ample supply for the needs of the most successful lucerne, yet the safest course is to supply the organism artificially, this being termed inoculation. By carrying out inoculation one may at times supply the organism when it is already present in sufficient numbers to meet all needs, but one at least ensures its presence, and this is well worth while, as any other available course involves the risk of a failure attended by considerable outlay in seed, manure, and cultivation. Supplies of the necessary organism are called "cultures," and are obtainable from seed merchants, together with explicit instructions regarding the use of the culture. The charges, which must be prepaid, for cultures are as follows: For any quantity of seed up to 30lb., 2s 6d (minimum charge); for 30lb. to 60lb. of seed, 5s; for 60lb. to 90lb. of seed, 7s 6d; for 90lb. to 120lb. of seed, 10s; and so on.

*Fig. 4.*—**Inoculation of the seed minimises the risk of failure and ensures a healthy, vigorous crop.**

Treatment of seed with suitable cultures may subsequently be nullified if the seed is brought into contact with soluble fertilisers such as superphosphate, sulphate of ammonia, nitrate of soda, kainit, and other potash salts. When treated seeds are mixed with any of these fertilisers the inoculating organisms on the surface of the seeds are destroyed. However, excellent results have been obtained when inoculated seed has been sown with superphosphate and carbonate of lime mixed in equal proportions for about a week before the seed was brought into contact with the mixture. Evidence that the required organisms are present in adequate numbers is provided by the development of curious growths known as nodules on the roots of the lucerne. Excellent nodule formation also occurs when seed sowing is effected by mixing inoculated seed with rock phosphate and basic slag. If desired, superphosphate can be used with safety, provided it is broadcast or drilled before seed sowing. The cultures remain viable on seed for some days after treatment, but sowing immediately after treatment is recommended.

## *Manuring*

On the basis of experience in many districts it has become the practice of successful growers of lucerne to apply 2 to 4cwt. of phosphate at or about the time of sowing the seed. Superphosphate, unless carefully used in the manner already described, may have a detrimental effect on the germination of the seed and on the inoculating organisms. Hence, for safety, some favour the use at this stage of serpentine superphosphate, basic slag, or a mixture of equal parts of superphosphate and lime. In most districts it is very advisable to dress lucerne

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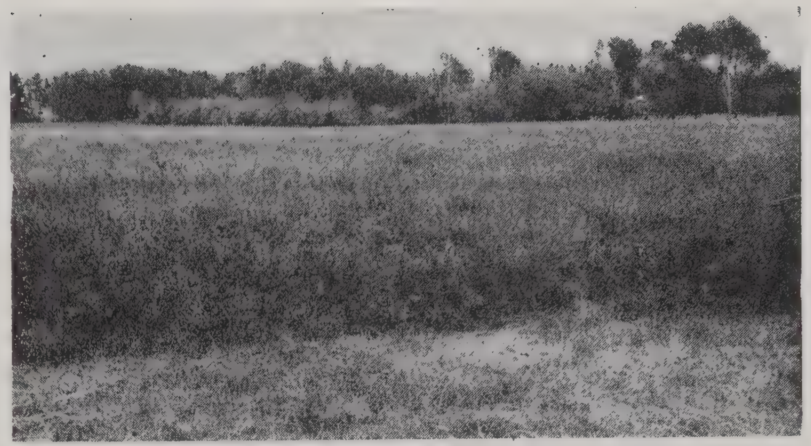

*Fig. 6.*—**The first cut in the spring after the sowing of oats following the final cultivation the previous autumn.**

at least annually with 2 to 3cwt. of superphosphate, which is at times successfully replaced by basic slag in the wetter climates. In some districts, such as in parts of Central Otago, there does not appear to be a profitable response to phosphatic manuring, but in other districts failure to apply phosphates has been a primary cause of past failures with lucerne. A number of successful North Island growers of lucerne advocate two phosphatic dressings annually, and the amount of mineral matter absorbed from the soil by a really productive crop supports such a practice, except in case of unusually fertile soils. Under conditions of relatively heavy rainfall, in which grass is prone to invade lucerne as a serious weed, phosphatic dressings should not be applied in the winter while the lucerne is still dormant. If applied at this stage the fertiliser would stimulate the grass and make it a stronger competitor of the lucerne —an effect the reverse of what is desirable. The manurial dressing may be applied with good results as soon as the lucerne has definitely made appreciable new season's growth, or after the first cut of the season has been removed, if this occurs early, as is usually the case when the first cut is utilised for silage. When a second dressing in a season is practised it is usually applied after the second cut. In relatively dry districts—e.g., Canterbury—the usual practice is to apply fertilisers during the winter months.

Available evidence does not indicate any general need for the application of potassic or nitrogenous fertilisers to lucerne.

## *Treatment During First Year*

The practice that should be adopted during the first year will vary greatly with circumstances. If annual weeds such as fat-hen and thistles have developed rapidly, and threaten by their competition to weaken or even destroy the young seedlings, then it will probably be necessary to mow the crop earlier than otherwise in order to give the invading weeds a setback, but if weeds are not threatening to give trouble it is harmful to mow the young plants until they are blooming or fresh young shoots have appeared at the base of the plants. The delaying of the first mowing until this stage favours the growth of an extensive root system, whereas a relatively early first mowing diverts the energy of the plant to a renewal of the aerial portion, with a resultant check to root development. In the warmer districts lucerne sown in November will usually be at a suitable stage for a first mowing in early February, and often a second cut will be available in April. In the cooler districts the first cut may not be obtainable until late February or March, and unless the season is a favourable one a second cutting may not be advisable, although generally a second light cutting will be possible about the middle of April. The final cutting for the season should be carried out before the commencement of the dormant period of the crop; some growth on the plants during the winter is desirable, for it fosters the stronger development of the root system, and to some degree competes with and checks the invading weeds.

## *Management*

At the end of its first winter a lucerne stand may contain a heavy population of weeds; indeed, on this account the lucerne crop may seem to possess every promise of a failure. The next few months probably constitute the most critical period in the life of the crop. However, provided the lucerne plants are present in satisfactory numbers and have been able during the previous months to develop strong root systems, there is no essential reason why with suitable management a weedy crop should not become a success. When the new growth coming from the crowns is approximately 2in. high, which frequently will be the case about September, the vegetation that has been standing during the winter may be removed by mowing, which should be adjusted so as to leave 3 to 4in. of stubble. Mow-

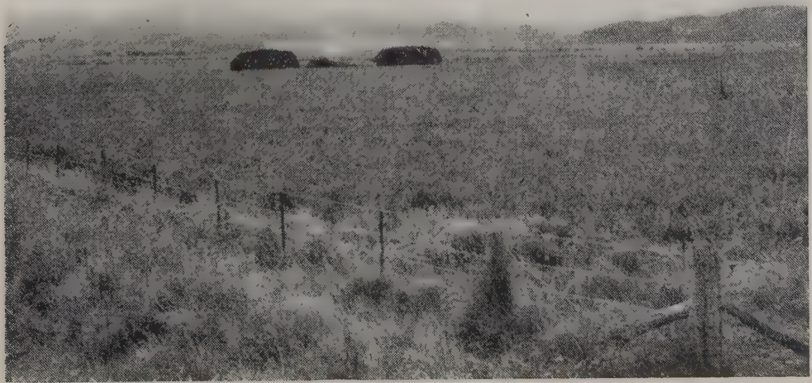

*Fig. 5.*—**Lucerne should be treated as a hay, silage, or soiling crop, as close and continuous grazing is detrimental to the stand.**

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ing in this manner may with benefit be made an annual practice, and if mowing is not carried out at this stage then at times light grazing is advantageous, but a field should not be grazed in its first year. Further, the heavier the soil the less likelihood is there of benefit from such grazing. At this stage topdressing could suitably be carried out.

Generally the new growth, which should be allowed to grow unchecked, provides a cut towards the latter part of November. It is likely that year after year this first cut will contain a substantial proportion of weeds, inclusive of plants which ordinarily are useful, but which when invading lucerne are weeds. Partly because of its weed content and partly because the weather usually prevailing at this period is unfavourable to haymaking, the first cut of lucerne is as a rule most advantageously used for silage. Further, because of the weeds in the first cut it should be made early enough to avoid ripening of the weed seeds.

If lucerne is mown in November, as suggested, it ordinarily should again be at a stage suitable for mowing early in January. The time and number of subsequent cuts will be determined principally by the rate of growth of the crop, but at least two other matters should be taken into consideration: In the first place, the crop should not be mown so late in the season that some fresh growth will not develop from the stubble, since it is against the welfare of the crop for it to pass the winter in the bare stubble state. In the second place, mowing should be done only at a particular stage of development of the herbage. This stage is reached when new shoots are just starting from the crowns or bases of a considerable number of the plants. Usually when fresh shoots have so developed about a quarter of the plants will be in the early flowering condition, but as this does not always occur reliable guidance as to the time to cut is not provided by observation of the flower development.

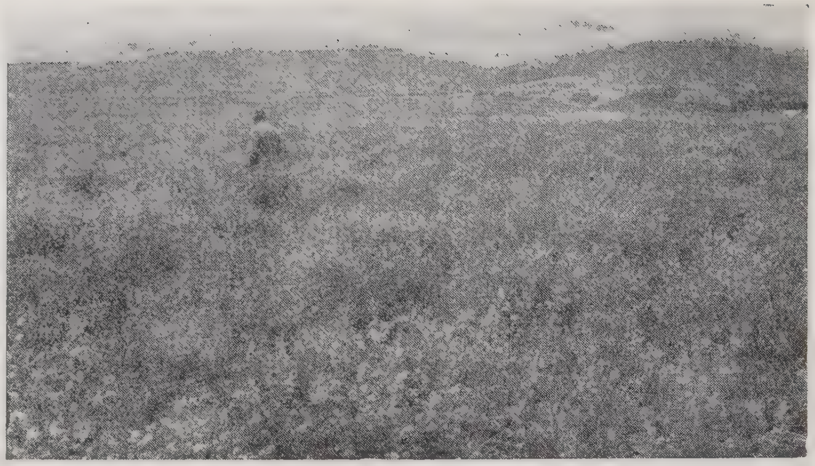

*Fig 7.—Lucerne under irrigation on the Galloway Flats in Central Otago.*

If the herbage is cut too late feed of unnecessarily low nutritive value is obtained—it is unduly fibrous, and the proportion of leafage as distinct from stems is small. This is of importance, as the leaves are the most nourishing portion of the crop. Further, if it becomes the rule to mow the crop at a later stage than that previously advocated, then the number of cuts obtainable each year will very likely be reduced with consequent loss in total annual production. Unduly delayed mowing of the first cut of the season is a fairly common fault when it is not utilised for silage. It is a fault which is very likely to lead to serious injury to a crop which is fairly heavily infested with weeds which started growth earlier in the season than did the lucerne, and which by this earlier

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development have an advantage over the lucerne in the vitally important competition for direct sunlight. The longer the first cut is delayed, the longer are such weeds depriving the lucerne of direct sunlight and thereby weakening it.

Mowing before the crop is mature enough is not such a common fault as mowing when it is too mature, but is prone to occur when a farmer is specially seeking succulent leafy forage in the summer, or when an endeavour is made to secure at the end of the growing season an additional cut, even though it is only a light one and possibly should not be harvested. Cutting lucerne at an immature stage provides highly nutritious herbage, but, if persisted in, rapidly leads to a weakened stand of decreased production. This results from the fact that the root system is drawn upon for the production of leaves and stems immediately after each cutting, and the more frequently this occurs the more heavily is root development reduced. To cut an immature growth at the close of the growing season is likely to be particularly injurious, because it results in a weakened stand to carry through the winter and compete with weeds in the spring.

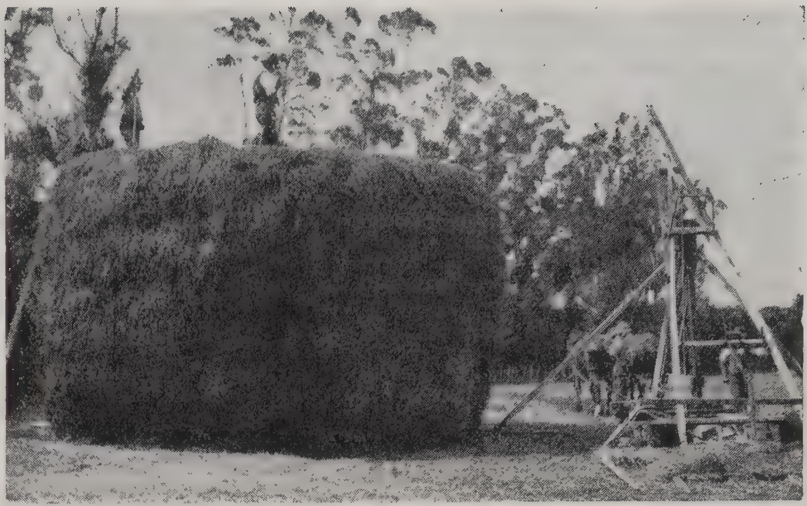


*Fig. 9.*—**The first cut in the spring, particularly where oats have been autumn-sown, should be saved as silage.**

## Cultivation

Principally as a means of reducing the competition of weeds, cultivation of lucerne is at times well worth while. For such cultivation to be of value it is essential first that the lucerne be not greatly damaged, and second that the cultivation be done under the conditions which will most greatly reduce the competition of weeds. In view of these requirements it follows that the implement employed should be fitted with tines designed for lucerne cultivation, that the use of disc harrows is generally too severe, and that dry summer or autumn conditions should be chosen for the work. As a rule a suitable time for such cultivation is after the second or third cuts; the dry weather which then is commonly experienced assists in the destruction of the weeds. Cultivation of lucerne has proved of value most commonly on open porous soils on which weeds may be disturbed effectively without at the same time materially injuring the deep-rooting lucerne. It is certain, particularly on the heavier types of soils, that cultivation has at times resulted in more harm than good, because it has led to a gradual thinning-out of the lucerne plants until eventually they become so sparse as to make the area unprofitable.

A method that is proving a useful modification of simple cultivation of lucerne which is being invaded by weeds is practised widely in parts of the North Island. This consists in sowing in late April or early May from ½ to 1 bushel of Algerian oats on stands which have been well cultivated shortly after having been mown or grazed. The cultivation injures the weeds and provides a seed-bed for the oats, with which about 2cwt. of superphosphate to the acre is usually applied. The oats furnish good feed in the spring, if required, and subsequently there will be available a heavy cutting of a mixture of oats and lucerne. It is as a rule highly advisable to use for silage the material thus provided. If it is not mown at an early stage the oats by shading the lucerne will unduly weaken it and thereby more than counterbalance the good they have done by checking persistent weeds. The success of the practice of growing oats with lucerne in this manner will depend to some extent on the texture of the soil; the practice is followed almost wholly on friable soils.

Cultivation under relatively wet or cold conditions is an unsound practice; it merely injures some of the lucerne plants without leading to a useful reduction of the weed competition. Suitable cultivation can be carried out by use of the tine harrows or of a light spring-tooth cultivator possessing specially narrow teeth.

If stem-rot (*Sclerotinia trifoliorum*) has appeared in a stand of lucerne, cultivation is most inadvisable, as it assists in the spread of this disease by tending to scatter infected soil. In order to enable crops infected with stem-rot to survive in a useful condition as long as possible the aid to weed suppression provided by cultivation must be replaced by specially good management in respect to such matters as time of mowing and adequate manuring.

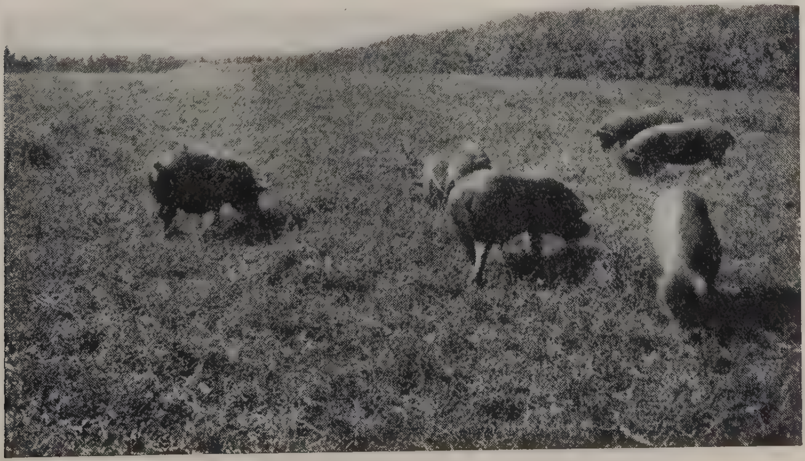


*Fig. 8.*—**Light grazing, as with pigs, is not detrimental.**

## Irrigated Lucerne

The following statement relative to lucerne under irrigation is an extract from Department of Agriculture Bulletin No. 120, "Irrigation Practice for Central Otago Conditions," by R. B. Tennent and J. R. Marks:—

"Under irrigation frequent cultivation of lucerne is a great necessity. One of the commonest causes of a lucerne stand rapidly going out is the intrusion of weed plants. Of these probably the grasses are most aggressive, and it is only by repeated cultivation that their invasion can be arrested. By cultivating during the winter months at least twice with a strong spring-tooth cultivator the bulk of the weeds can be kept under control. Where it is possible a cultivation after each cutting is desirable. Not only will cultivation of this description check the growth of weeds, but its secondary effect of breaking up the consolidated soil, thus separating it and lessening the rate of evaporation, will be of great advantage in maintaining the vitality of the crop. Any damage likely to accrue from this practice may be considered as negligible in contrast with the benefits conferred on the crop."

Unfortunately, even with a maximum amount of cultivation, couch-grass (*Poa pratensis*) gradually asserts itself, until in the course of from five to eight years the lucerne stand becomes a mixture of probably 50 per cent. grass and 50 per cent. lucerne. Experience has shown that it is practically impossible to renovate a stand of this mixture without ploughing and resowing, and probably the most practical method of dealing with a field in this condition is simply to treat it as a grazing paddock and establish fresh lucerne elsewhere.

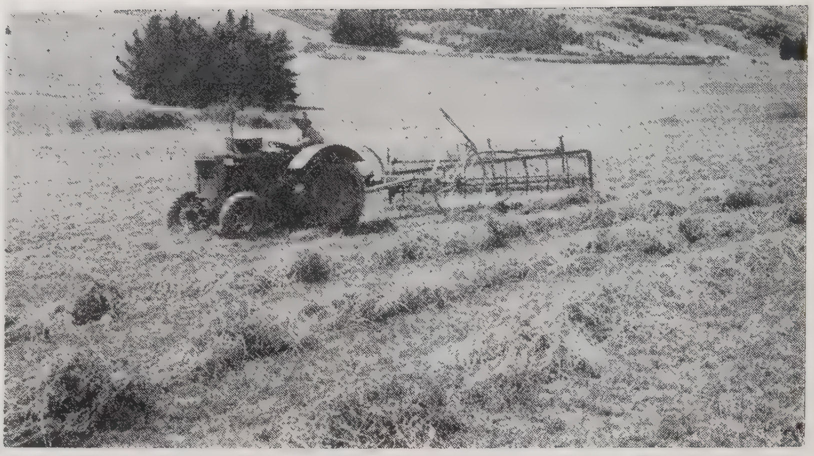
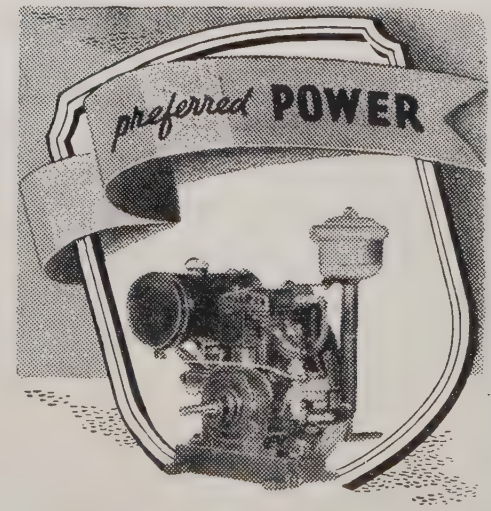


*Fig. 10.*—**Putting the hay crop into the windrow.**

## *Grazing*

To secure for lucerne a long life of maximum production grazing of the crop should as a rule be avoided. The consolidation caused by grazing favours grass, and thereby increases the competition with the lucerne. But at times despite this it is not practicable or desirable that the farmer should abstain totally from grazing of the stand. Provided the conditions are favourable to lucerne, grazing, if carried out carefully, may not do much harm to established stands, but grazing of lucerne in its first year is not advisable. Close and continuous grazing of a lucerne crop may be expected to lead to a permanent reduction in the yield from it. On the other hand, successful lucerne fields have been grazed first in the spring to remove coarse growth present from the winter, and second in the autumn when an intermediate amount of growth not worth mowing is available. Particularly is close grazing of lucerne during its dormant winter period productive of harm, as also is grazing when the land is so wet that it is subject to poaching by stock. Grazing at times has the effect of introducing viable weed seeds in the dung of animals fed on herbage which has been allowed to ripen seed, and because of this, and apart altogether from its direct harmful influence on the lucerne plants and on the soil, it may shorten the profitable life of a stand.

Grazing of green lucerne by dairy cows calls for care in order to avoid hoven or bloat in the animals. The lucerne should be fed sparingly at the beginning, and not when it is wet. To avoid the danger of the stock eating it greedily they should not be grazed on lucerne until they have had an opportunity of partly satisfying their appetites on other feed. Hence, as a rule they should not be given access to the lucerne until late in the day, and then only for half an hour or even less in the early stages; and when the stock are in the lucerne they should be watched carefully for signs of hoven. Gradually as the stock become accustomed to such feeding the period may be extended from half an hour to an hour and a half, and at the same time the danger from bloat will lessen, although there is always danger if hungry animals are given access to green lucerne. Field experience shows that the danger of bloat is greatest when succulent, immature lucerne is concerned.



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As a rule the care necessary with dry stock in grazing lucerne is not as great as that called for with dairy cows, but particularly during the first few days the danger should not be overlooked, and precautions should then be taken to avoid such causative conditions as empty stomachs and wet lucerne. Grazing of lucerne has been carried out satisfactorily not only with cattle but also with sheep and pigs; these call for greater care than cattle in order to avoid injury of the plants.

When a weed is viewed as a plant in a place where it is not desired many highly-productive plants, such as ryegrass, cocksfoot, and clovers, may be weeds when considered in relation to lucerne. If a lucerne field has become badly invaded by plants which provide useful feed, or if much cultivation is needed to prevent the invasion of lucerne by large numbers of such plants, then it may be sound practice to utilise the lucerne area chiefly as a grazing field from which probably it would be possible to obtain not more than three cuts in the year, in the first of which lucerne would be a minor constituent. The relatively small amount of mown material obtained from such a practice would be balanced by the increased grazing secured and the absence of any need for cultivation.

If thinning-out of a lucerne stand due to such a cause as repeated or excessively severe cultivation has occurred to such an extent as to make the stand of doubtful value, it is at times well worth while to cultivate it in April sufficiently to provide a seed-bed, and on this bed to sow Italian ryegrass or prairie grass. By this practice the field may be made highly productive for another year or two.

## *Mowing Lucerne*

Lucerne is of outstanding value when utilised by mowing. Indeed, the highest production may be expected from lucerne when it is treated essentially as a hay, silage, or green crop to be mown and carted out to stock. Used as a mown crop it is fitted to serve as an exceedingly valuable companion crop to pastures, in that it may readily be made to supplement their feed in those seasons in which pasture growth is scant.

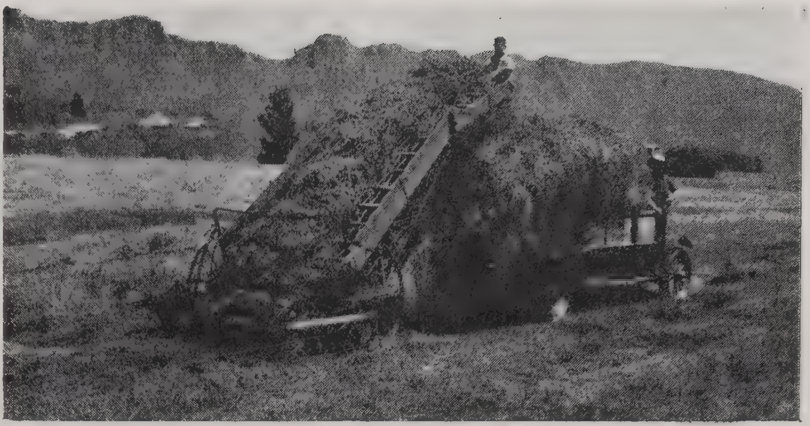

*Fig. 12.*—**Where a pick-up baler is not available, alternative machinery reduces harvesting costs.**

The first cut of lucerne, which usually should be made in November, is as a rule most conveniently and effectively utilised in silage. This is partly because in localities where mild weather favours the growth of grasses and weeds in early spring, it is generally so mixed with other herbage as to provide material well suited for silage production, and partly because the weather usually prevailing when the first cut is made is very unfavourable to the production of good hay. The amount of green material available from the lucerne area may not be sufficient for economical silage. Then, to provide the required bulk, material from the pastures may usually be saved with that from the lucerne area or the lucerne may be saved with such a crop as green oats.

Apart from the first cut of the season lucerne may be used either in a green condition as a summer supplementary crop to grass or as a hay crop. When it is being fed as a green crop care must be taken to use it before it has reached a woody or stemmy condition. This is particularly advisable in the feeding of dairy cows. As a means of supplementing the feed from pastures green lucerne has given excellent results when fed together with soft turnips. Calves, pigs, horses, and sheep have all fared well on green lucerne.

*Fig. 11.*—**The pick-up baler has its advantages in the saving of costs.**

The making of good lucerne hay calls for care designed to avoid the loss of leaves which readily occurs if handling is faulty. The mown crop should not be left in the swathe to dry sufficiently to allow of carting in. If this were done the leaves, which are much more nutritious than the stalks, would become dry and brittle, and would fall off readily before enough sap had been removed from the stems to allow the herbage to be stacked. Because of this, cocking should be practised in saving lucerne hay. Lucerne hay is at times stacked before it is dry enough. This probably arises because the stems do not become dry enough as quickly as the leaves. Hence in the making of lucerne hay the condition of the stems should receive special attention.

Well-made lucerne hay is particularly nutritious, its content of protein and mineral matter as a rule being notably high. On this account lucerne hay is of special value for feeding to cows in milk in the winter or spring, if fresh leafy grass is then scarce. Lucerne hay is also fed to horses with excellent results.

## *Diseases of Lucerne*

Although several fungoid diseases have been found attacking lucerne in New Zealand, none of them, with the exception of stem-rot, is of great practical moment. The following are the most common ones:—

(1) **Stem Rot.**—The fungus *Sclerotinia trifoliorum* (which is synonymous with *Rhizoctonia*) is a serious disease of lucerne in this country and can

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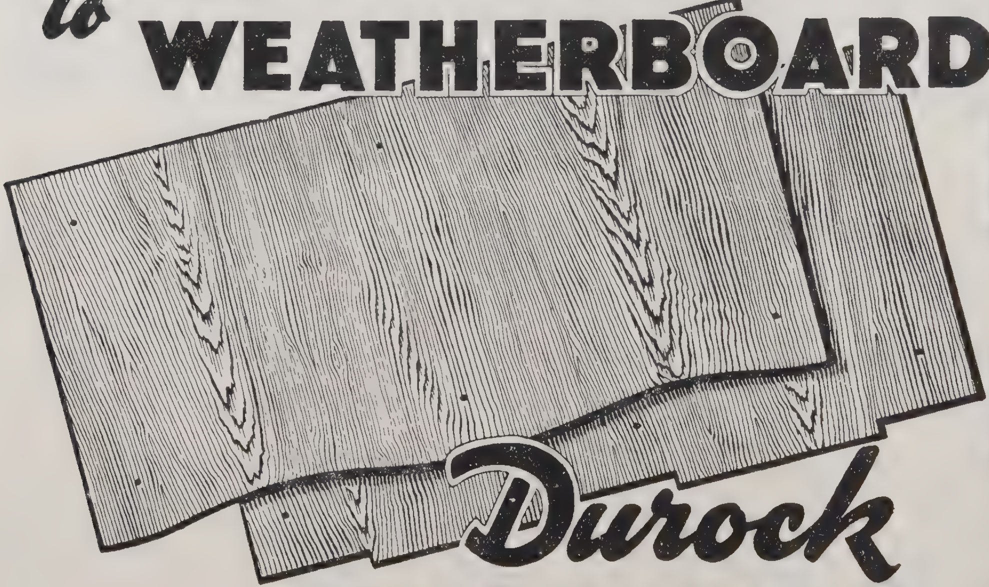

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*Fig. 13.*—**It is essential that lucerne hay should be well saved.**

easily be seen if plants which have been attacked recently are examined during a spell of wet, warm weather. Then a whitish, soft, cobwebby growth will be found attached to the infected plants. The following statement prepared by the Mycological Laboratory relates to stem-rot:—

"The disease becomes readily noticeable on account of the rapid manner in which it induces wilt, followed by death, of attacked plants. Examination of such plants shows that the stems near the crown are infected, these carrying discoloured lesions, which are commonly concealed by a weft of coloured mycelium. Embedded in this mycelium may often be found sclerotia of the fungus, for the species differs from *Sclerotinia sclerotiorum* in producing these bodies externally, whereas in the latter they are invariably produced within the cavity of the stem. Field experience has tended to show that this disease is carried with the seed, and this evidence has been strengthened by recent laboratory investigations. Consequently, it is advisable to have seed tested for the presence of the disease, and to recommend that only lines found to be free should be sown in new stands. Where the disease has become established in an old stand, it may be held in check by the following treatment:—

"(a) Remove infected plants and those showing signs of wilt, as it is by means of sclerotia produced on these that the disease is able to persist.

"(b) Lime the soil at the rate of 1½ lb. per square yard with freshly-prepared hydrated lime. Soil fungi of this type are intolerant of alkaline conditions, and can be held in check by lime dressings, provided the lime is of the type specified, since experience has demonstrated that carbonate is practically worthless."

If possible, a lucerne area infected with stem-rot should receive no cultivation which tends to spread the infection. Moist conditions favour the disease. Hence drainage of wet patches in a field should receive attention, and diseased areas of the crop should be mown to enable the stems of the plants to be as dry as possible. Grazing of fields infected by the disease tends to spread the disease to healthy portions of the crop.

(2) **Leaf-spot,** due to *Pseudopexiza medicaginis,* is characterised by small dark-brown or black spots on the surfaces of the leaves. The disease is common on lucerne especially in stands which are suffering from drought, from poor drainage, or from competition of weeds. In fact, any unfavourable condition will induce attack. The spots are accompanied by yellowing of the leaves, and in severe cases yellowing is followed by the fall of the leaves. Improvement of crop conditions where these are inferior will tend to reduce the disease. Generally a troublesome attack of the disease may be checked by mowing the crop.

(3) **False Mildew,** due to *Peronspora trifolii,* results in the development of a downy yellowish-grey or purplish mould on the undersides of leaves. Infected plants are usually stunted, and they are generally found on wet, low-lying portions of a field. To control the disease it is necessary to bring about dry conditions of both ground and crop. Hence wet areas should be drained and infected patches should be mown close to the surface.

## *Summary*

(1) The area of lucerne in New land is relatively small and is increasing but slowly.

(2) Experience in New Zealand and overseas has indicated definitely that lucerne is not specially exacting in its requirements, and indeed that it may be grown with success over a wide range of soil and climate. Drainage and fertility are important factors in success with lucerne.

(3) A successful lucerne field is of remarkable value because lucerne is characterised by high yield, high nutritive value, reliability during crucial dry periods, low cost of production, and a capacity to increase rather than to exhaust the soil content of nitrogen.

(4) During the period of its establishment lucerne is unable to compete successfully with many common weeds; hence for the sowing of lucerne clean ground should be selected.

(5) A fine, firm seed-bed, which is highly desirable, calls for early and ample preparatory cultivation.

(6) Usually liming of lucerne areas is highly profitable. A dressing of 1 ton per acre of ground limestone at the time of the establishment of the crop is the general practice of successful growers of lucerne, and the initial dressing is supplemented by subsequent and usually smaller dressings at regular intervals.

*Fig. 14.—Scelerotinia trifoliorium* **(or** ***Rhizoctonia)*** **causes dying out in patches.**

(7) Sowing of the seed usually is not advisable until late in November or early in December, when warmer conditions obtain. Under special circumstances autumn sowing is at times justified. From 12 to 18lb. of seed per acre, drilled in rows 7in. apart or broadcast, gives good results. Marlborough seed may be recommended for general use.

(8) Inoculation of the lucerne stand is often essential, and as a safety measure should be carried out generally.

(9) Topdressing of lucerne with phosphatic fertilisers is very advisable, and at times governs the failure or success of a crop.

(10) In its first year lucerne should not be grazed, and unless weeds are shading it excessively it should not be mown until young shoots have appeared at the crowns or bases of the plants.

(11) Care should be taken to mow established lucerne at the correct time. The first cut of the season should be removed early, usually in November, and subsequent cuts when fresh shoots at the crowns of the old plants have developed a length of 1in. to 2in.

(12) Particularly when a lucerne stand is being invaded by other plants, surface cultivation of the lucerne may be of considerable value, provided it is done at a suitable time and in a suitable manner. It at times proves advantageous to grow autumn-sown oats in lucerne as a means of suppressing more persistent foreign growth. When this is done the first cut of the season should be removed at an early stage. Excessive or drastic cultivation may thin out a lucerne stand to an undesirable extent. Cultivation may also spread stem-rot.

(13) Grazing of lucerne is not to be generally recommended, and when practised special precautions are necessary.

(14) As a mown crop lucerne is of very great value. The first cut of the season should generally be saved as silage. Usually other cuts should be saved as hay or fed in summer in a green condition.

(15) Lucerne is attacked by several fungoid diseases, but only stem-rot is of considerable moment. The ravages of stem-rot may be reduced by suitable management.

### *Conclusion*

Lucerne has outstanding merits, and deserves a much more important place than it holds in our livestock farming. It has had a place in New Zealand farming for many years, but the area devoted to it is small and is expanding but slowly. This will probably continue to be the case until the true facts regarding lucerne are more generally known. Lucerne is not an expensive crop; it is not a difficult crop; it is not an exacting crop; it is not an exceptional crop to be grown with success only under very particular circumstances on a limited range of soils.

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## MAKING THE MOST OF SILAGE

To ensure that stock get the best out of silage it should be fed as fresh from the stack as possible and not allowed to deteriorate by lying out in the paddock for a lengthy period prior to the stock having access to it. Once silage is exposed to the air it dries out and spoils fairly rapidly, and the feeding value and palatability are reduced.

In opening a stack of silage for feeding out there are two methods that can be employed. First, the whole of the stack can be uncovered by removing the soil, and the whole face fed from day by day, or, second, a section can be uncovered and fed right to the ground before a second section is uncovered. Both methods have their supporters and their critics. Either method can be right, depending upon the relative size of the silage stack and the herd. With a small to medium size stack and a large herd it is all right to uncover the whole surface and feed it right down, but where the herd is small and the stack large only a section should be fed out before a second one is opened. The amount of silage that should be removed each day should not be less than 4 to 6in. in depth, for if only an inch or two is removed, the stock are getting a dried-out, inferior fodder.

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## Gestation Table

| | | |
|---|---|---|
| Mares .. | 340 | days from date of service |
| Cows .. | 283 | " " " " " |
| Ewes .. | 150 | " " " " " |
| Sows .. | 116 | " " " " " |
| Bitches . | 63 | " " " " " |
| Rabbits | 28-30 | " " " " " |

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# UNRRA Appointment

## DR. C. S. M. HOPKIRK

DR. C. S. M. Hopkirk, who has been in charge of the Department of Agriculture's Animal Research Station at Wallaceville for many years, has accepted an appointment with UNRRA which will involve a period of duty in Europe after shorter stays in Sydney and Washington.

Dr. Hopkirk's distinguished career has included a great deal of important work for the animal industry during 33 years' service with the Department.

DR. C. S. M. HOPKIRK.

Born at Hamua on October 30, 1894, Dr. Hopkirk was educated at Brooklyn Primary School, Wellington Boys' College, Victoria University College, and later at Melbourne University. He joined the staff at Wallaceville on March 13, 1912. Because of staff shortages during the early part of the 1914-18 war, much of the work of Wallaceville fell on his shoulders, with the additional burden of the care of sick and injured horses from the Remount Station at Trentham. During this time Dr. Hopkirk was a corporal in the N.Z. Veterinary Corps, and in 1915 he travelled with a draft of horses to Samoa. In 1917 he left as a trooper with the Wellington East Coast Mounted Rifles and fought in the Egyptian campaign. He returned early in 1919, spent a year at Wallaceville, and then in 1920 went to Melbourne University, where he studied in the Faculty of Veterinary Science and graduated B.V.Sc. with first class honours in December, 1923. He was offered a teaching and research scholarship to be held at Melbourne and later in Great Britain, but he preferred to return to New Zealand and take up the appointment in 1923 of officer-in-charge of what was then styled the Wallaceville Veterinary Laboratory.

The growth of Wallaceville is associated with the realisation of the need for study and research on the causes of animal diseases as an essential step towards their prevention. Dr. Hopkirk fostered this work, and in 1929 laboratory accommodation was doubled to house new workers. By 1936 it was evident that still further accommodation was required, and a new building planned at that time was opened in 1940. The growth of Wallaceville is illustrated by the staff changes; in 1923 the total staff was 5, and at present it is over 60. In 1939 the laboratory was incorporated in a newly-formed Animal Research Division of the Department of Agriculture and was named Wallaceville Animal Research Station.

Dr. Hopkirk was awarded the degree of Doctor of Veterinary Science by the University of Melbourne in 1934 for a thesis on mastitis in dairy cows. He was president of the veterinary section of the Australian and New Zealand Association for Advancement of Science at its Melbourne meeting in 1935. He made a world tour in 1938 on behalf of the Department of Agriculture, visiting all the important veterinary research stations abroad, and represented New Zealand at the first Imperial Veterinary Congress in London in 1938 and at the International Veterinary Congress at Zurich-Interlaken, Switzerland, in the same year. He has been an office bearer of the New Zealand Veterinary Association for 21 years, and was president for two terms, 1941-42 and 1942-43.

Dr. Hopkirk has made many contributions to the knowledge of stock diseases in New Zealand, which are embodied in over 50 scientific publications. His name is most closely associated with his work on mastitis, facial eczema, black disease of sheep, and sterility problems.

P1

STAMPS

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# N.Z. Agriculturists in Bengal

FOLLOWING a request from the Bengal Government in July, 1944, three New Zealand agricultural specialists were sent by the New Zealand Government to assist in plans to increase Bengal's food resources, which the famine of 1943 had proved to be tragically inadequate. They were Mr. J. A. Singleton, Lecturer in Dairy Science, Massey Agricultural College, Mr. C. E. Ballinger, Research Officer in Animal Nutrition, Ruakura Animal Research Station, and Mr. S. G. Haddon, Poultry Instructor, Department of Agriculture.

Mr. Ballinger has been preparing a scheme in consultation with other technical experts to establish a 5,000- or 6,000-acre dairy farm with provision for livestock breeding research on what is at present derelict land about 40 miles north of Calcutta. The Bengal Government recently approved the plan at a capital cost of about £400,000. Work on preparing the ground, irrigating it, and clearing it of malaria has now started.

Mr. Singleton has concentrated on the milk supply of Calcutta and has been investigating its deficiencies. His problems have been intensified by the fact that during the war the population of Calcutta has increased by about one and a half million people to some four million.

Mr. Haddon has spent most of his time in Bengal's principal agricultural research station in Dacca, Eastern Bengal, examining the possibilities of modern poultry farming in rural Bengal.

The task of these specialists has not been by any means easy in that the province has a population of some 60 million people, most of whom are poor and ignorant of modern farming developments, but the Bengal Government has expressed great satisfaction with the work they have done.

## PHOSPHATIC FERTILISER CONTROL ORDER 1945

**A NEW Phosphatic Fertiliser Control Order to replace the 1944 Order was notified in the Gazette of July 5. The new Order dispenses with the special per cow allocation for dairy farmers authorised by the 1944 Order, and in its place provision has been made for a general increase in allocations of phosphatic fertiliser to all farmers for topdressing purposes of 50 per cent. on the basic quantity allowed for topdressing under the 1944 Order. The allocation for wheat grown in the South Island is also increased from 1cwt. to 1¼cwt. per acre.**

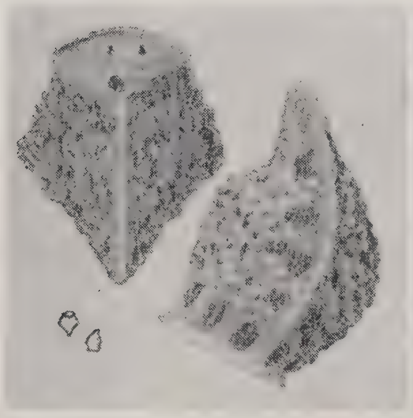
# Weed Seeds In Agricultural Seed

*(Fifth Series).*

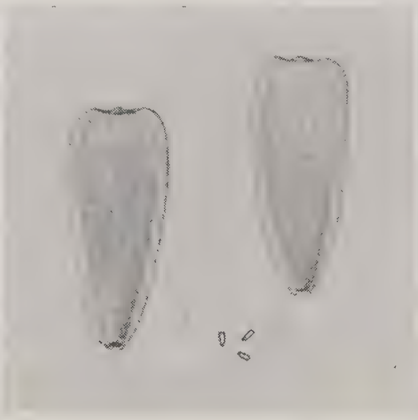
*By*

E. O. C. HYDE,
*Seed Analyst, Seed-Testing Station,
Palmerston North.*

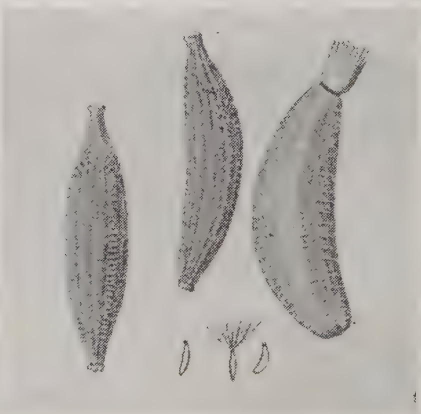
*The preceding four series of illustrated weed seeds appeared in the January, May, June, and July issues respectively of the "Journal."*



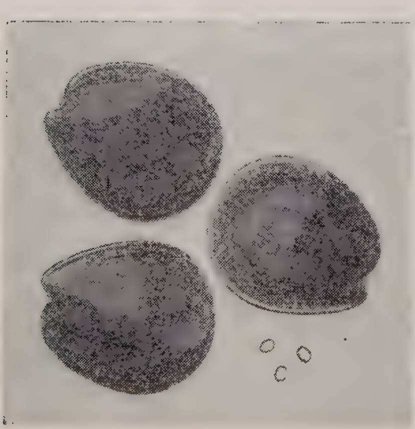
*ECHIUM VULGARE:* VIPER'S BUGLOSS; BLUEWEED. Colour variously mottled grey and black or brown. Occurs infrequently in red clover and lucerne, and in wheat, oats, and barley. Australia admits not more than five seeds per ounce. A biennial weed of pastures and cultivated land.



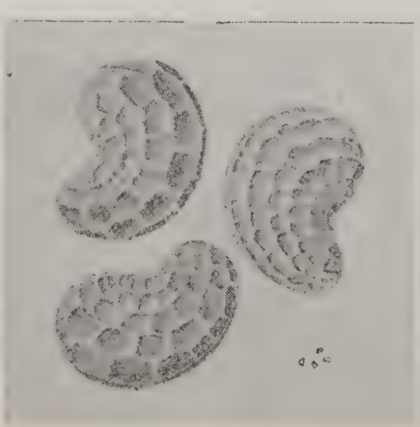
*ACHILLEA MILLEFOLIUM:* YARROW. Colour grey, the lateral margins lighter coloured than the centre. Occurs with medium frequency in browntop and crested dogstail. A perennial weed spreading by underground stems, which habit makes it difficult to eradicate. Although a troublesome weed on cultivated land, it is not without value in sheep pastures, and is a useful turf-forming plant on light soil.



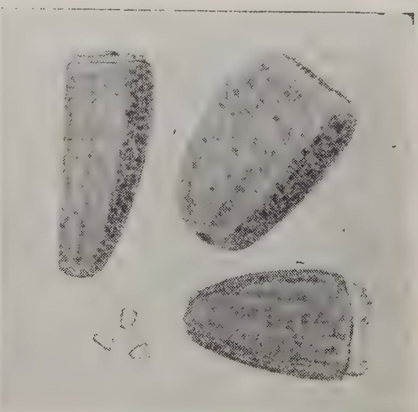
*LEONTODON HIRTUS:* LESSER HAWKBIT. Colour brown. Seeds from the outer ring of florets differ from those of the inner florets, being lighter coloured, thicker, more smooth, and having only a vestigial pappus. Occurs frequently in ryegrass, cocksfoot, chewings fescue, and crested dogstail. A short-lived perennial rosette weed, widely distributed in dry, open pastures.



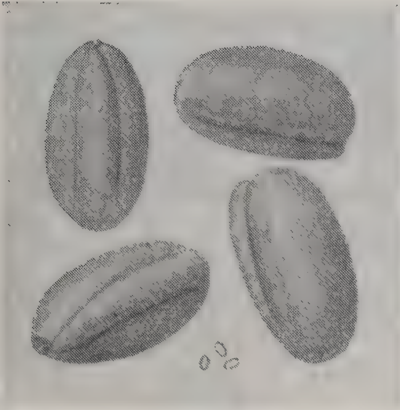
*CALANDRINIA CAULESCENS:* HORGAN'S WEED. Colour black. Occurs infrequently in white clover and red clover. Not more than 20 seeds per ounce admitted into Australia. An annual weed of cultivated land.



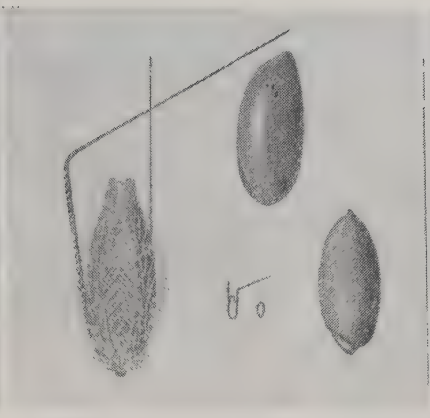
*PAPAVER RHOEAS:* FIELD POPPY; CORN POPPY. Colour grey to brown. Occurs rarely in white clover and yarrow. Australia admits not more than 50 seeds per ounce. An annual weed of cultivated land; not aggressive in this country.



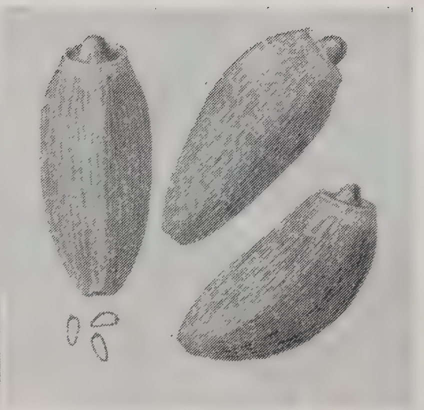
*CICHORIUM INTYBUS:* CHICORY. Straw coloured, mottled with dark spots. Occurs rarely in red clover and lucerne. Australia admits not more than 50 seeds per ounce. A perennial pasture weed of little importance.



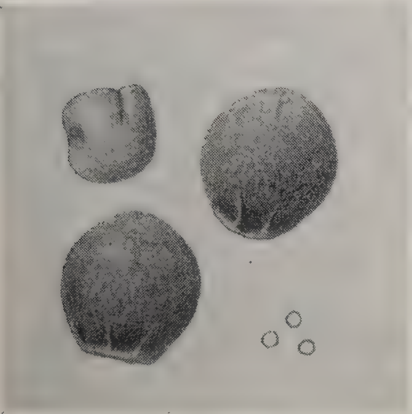
*CAMELINA SATIVA:* FALSE FLAX; GOLD OF PLEASURE. Colour brown. Occurs with medium frequency in linen flax seed. Australia admits not more than 10 seeds per ounce. An annual weed not uncommon in flax crops, but rarely found elsewhere.



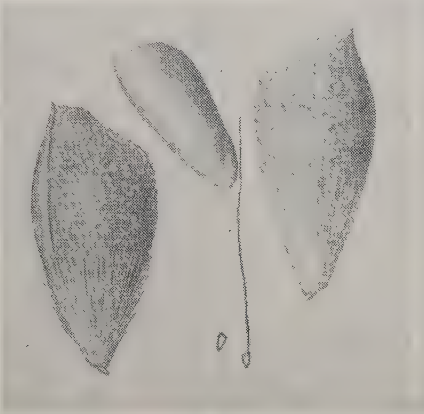
*ANTHOXANTHUM ODORATUM:* SWEET VERNAL GRASS. Colour dark brown. Occurs frequently in ryegrass, cocksfoot, crested dogstail, and white clover. A perennial grass of some use on poor land, but regarded as a weed when it displaces more productive grasses on fertile land.



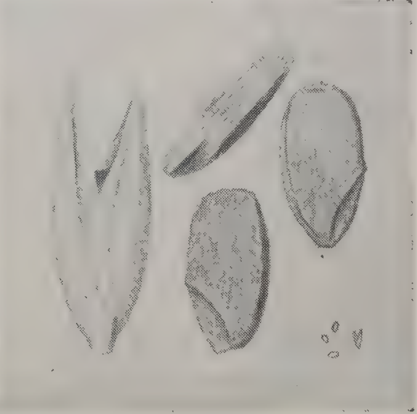
*CIRSIUM LANCEOLATUM:* SPEAR THISTLE; SCOTCH THISTLE. Colour light grey or yellow, streaked with black. Occurs frequently in ryegrass, cocksfoot, and red clover. Not more than 10 seeds per ounce admitted into Australia. A common biennial pasture weed.



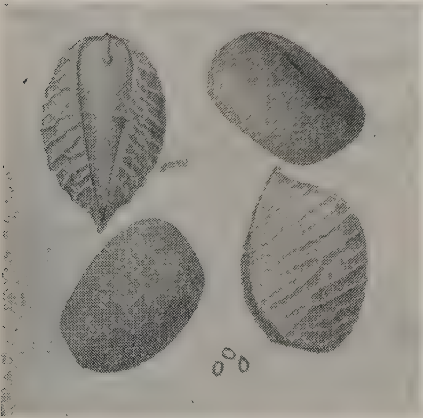
*FUMARIA MURALIS:* WALL FUMITORY. Colour dark green or brown. Kernel amber coloured with pink flecks. Occurs with medium frequency in mangold and beet seed; rarely in red clover and cocksfoot. An annual weed of cultivated land.



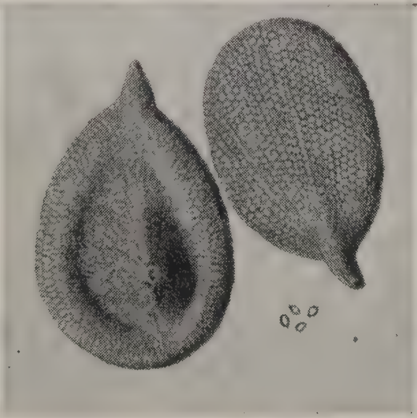
*NASSELLA TRICHOTOMA:* NASSELLA TUSSOCK. Seed straw coloured. As an impurity in agricultural seed it has been observed only twice in white clover. A perennial tussock-forming grass. A troublesome weed where it occurs in sheep pastures in districts of low rainfall.



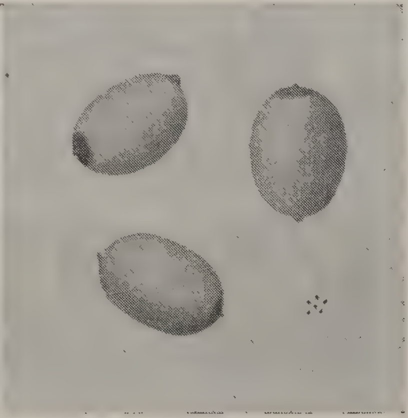
*SPOROBOLUS CAPENSIS:* RATSTAIL GRASS. Colour: husks grey, grain red. The grain is loosely held and readily shakes free. Occurs with medium frequency in *Lotus major, Lotus hispidus,* and danthonia; rarely in white clover. A harsh, unpalatable grass, confined to the warmer districts.



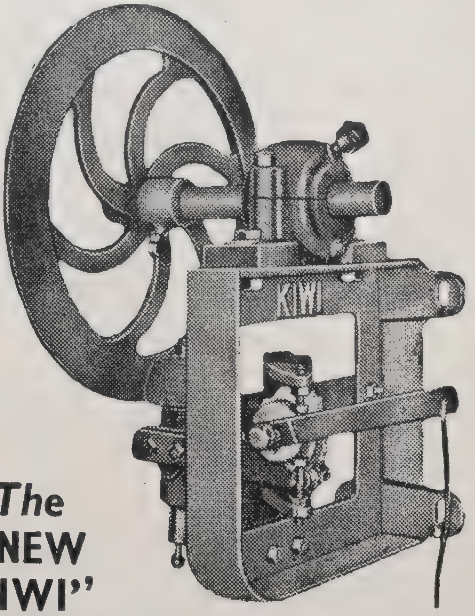
*GERANIUM MOLLE:* DOVE'S FOOT. Colour brown. Occurs with medium frequency in white clover. An annual weed of pastures and cultivated land.



*DIANTHUS ARMERIA:* DEPFORD PINK. Colour black. Occurs infrequently in crested dogstail and white clover. A biennial weed of little importance.



*JUNCUS BUFONIUS:* TOAD-RUSH. Colour brown. Occurs frequently in browntop. An annual weed found mostly on heavy, wet land.



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# N.Z. Poultry Flock Improvement Plan

## Accreditations in First Year

THE accrediting of poultry flocks for the first year of the New Zealand Poultry Flock Improvement Plan has been completed. The number of accredited flocks, namely 28, is not large, but as 1945 is the initial year of the plan, this number represents a satisfactory beginning. There is every promise of an increased number for 1946.

IT must be remembered that the conditions under which the plan is operating in 1945 were not laid down with a view to enabling a large number of flocks to be accredited at a moderate standard; rather was the intention to set a high standard and allow first-class flocks only to be accredited. All those associated with the formulation of the plan were fully aware that the conditions set down for this year would in all probability be amended for next year as the result of experience gained during the critical first year. Furthermore, it was realised that those responsible for actually carrying out the inspecting and accrediting of flocks would discover difficulties which in future years would be more easily overcome, if not entirely avoided.

**Undoubtedly the poultry industry and the Department of Agriculture have started a method of improving the standard of the poultry flocks in the Dominion, an action which will eventually be far reaching in its effect upon the industry. There must be no looking back or hesitating. A sound, if not spectacular, start has been made.**

The New Zealand Poultry Board and the Department of Agriculture announce the names of the following poultry-farmers whose flocks have been accredited for 1945. Hope is expressed that their names will appear for many years in this list, which will be published annually.

### LIST OF ACCREDITED FLOCKS FOR 1945.

AUCKLAND (including Whangarei, the Waikato, and East Coast).

| Flock Owner: | No. of Breeding Females Accredited. |
|---|---|
| G. Burmester, Bank Street, Morrinsville .. .. | 161 W.L. hens |
| Mrs. P. M. Kokich, Kokopu, Whangarei .. .. .. | 61 W.L. hens |
| H. Long, Dalgleish Avenue, Te Rapa, Hamilton .. | 227 W.L. hens |

WELLINGTON (including Taranaki, Manawatu, Hawke's Bay, Gisborne, Blenheim, and Nelson).

| Flock Owner: | No. of Breeding Females Accredited. |
|---|---|
| H. F. Birley, Mako Mako Road, Levin .. .. .. | 80 W.L. hens |
| T. Bishell, Old Renwick Road, Blenheim .. .. | 46 W.L. hens<br>4 W.L. pullets |
| D. K. Chamberlain, Waverley | 248 W.L. hens |
| J. J. Faulkner, Wolsley Street, Hastings .. .. | 68 W.L. hens |
| I. D. Fisher, Lakings Road, Blenheim .. .. .. | 50 W.L. hens |
| Government Poultry Station, Wallaceville .. .. | 203 W.L. hens<br>67 B.O. hens |
| J. Jones, Waerenga-a-hika, Gisborne .. .. .. | 77 W.L. hens |
| J. L. Judd, 122 Villa Street, Masterton .. .. .. | 66 W.L. hens<br>22 W.L. pullets |
| Miss M. King, Flygers Line, Kairanga, R.D. .. .. | 90 W.L. hens |
| A. J. Shailer, Albert Street, Palmerston North .. .. | 60 W.L. hens<br>6 W.L. pullets |
| A. J. Smith, Omahu Road, Hastings .. .. .. | 40 W.L. hens<br>12 W.L. pullets |
| Mrs. D. E. Watts, 482 Aberdeen Road, Gisborne .. | 50 W.L. hens |
| A. Williams, Colwell Poultry Farm, Masterton .. .. | 484 W.L. hens<br>84 W.L. pullets |

CANTERBURY-WESTLAND.

| Flock Owner: | No. of Breeding Females Accredited. |
|---|---|
| Canterbury Agricultural College (Lincoln), Christchurch | 207 W.L. hens |
| F. Hughes, Speechly's Bridge, Geraldine .. .. .. | 719 W.L. hens |
| G. H. Lintott, Ohoka, Christchurch .. .. .. .. | 177 W.L. hens |

OTAGO-SOUTHLAND.

| Flock Owner: | No. of Breeding Females Accredited. |
|---|---|
| D. Christie, Herbert .. .. | 319 W.L. hens |
| L. A. Harris, Herbert .. | 128 W.L. hens |
| H. Hore, Herbert .. .. | 330 W.L. hens |
| J. F. Johnstone, Awamoa Road, Oamaru .. .. | 236 W.L. hens |
| S. J. Korner, Wingatui, Dunedin .. .. .. | 207 W.L. hens |
| D. M. Moffitt, Eden Street, Oamaru .. .. .. | 400 W.L. hens |
| W. L. Rodgers, Whitstone, Oamaru .. .. .. | 285 W.L. hens |
| C. S. Warren, 39 Malvern Street, Woodhaugh, Dunedin | 66 W.L. hens |
| Mrs. E. R. Watson, Windsor, Oamaru .. .. .. | 228 W.L. hens |

### REPORT AND COMMENTS ON FIRST YEAR.

The closing date for applications for accreditation under the New Zealand Poultry Flock Improvement Plan was January 15, 1945. At this date 97 applications had been received in the following proportions on the basis of areas included under the four Provincial Associations of Registered Poultry-keepers.

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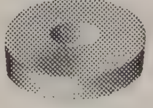

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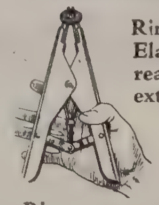
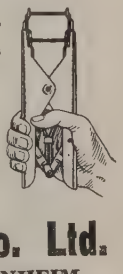
This rubber ring (illustrated actual size) is affixed to the purse above the testicles. Circulation is stopped. The testicles and purse above the ring atrophy and fall off, completing castration.



Ring on Elastrator ready to be extended.



Ring extended for application to purse.

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| | | |
|---|---|---|
| Auckland .. .. | 26 | applications |
| Wellington .. .. | 48 | " |
| Canterbury-Westland | 10 | " |
| Otago-Southland .. | 13 | " |

During the next four months a considerable number of applicants withdrew from the plan on finding on closer consideration that they were unable for the current year to comply with the conditions and in cases where it was found impossible to reduce the number of reactors to the pullorum test in the breeding flock to below 6 per cent. Finally, a few applicants claimed that the period chosen for accrediting flocks was too late and, fearing trouble if their flocks were handled when in production and mated, withdrew their applications recently.

The inspection of flocks for accreditation took place during June and early July. The majority of flocks were inspected by officers of the department, but assistance was given by representatives selected by the industry in the Waikato and Canterbury. The assistance given by poultry producers was much appreciated by the officers of the department in the districts named. The position regarding accreditation of poultry flocks for 1945 may be summarised as follows:—

| District. | Total Applications Received. | No. of Applications Withdrawn. | No. of Flocks Inspected. | No. of Flocks Accredited. |
|---|---|---|---|---|
| Auckland .. .. | 26 | 11 | 15 | 3 |
| Wellington .. .. | 48 | 21 | 27 | 13 |
| Canterbury-Westland .. | 10 | 2 | 8 | 3 |
| Otago-Southland .. | 13 | 2 | 11 | 9 |
| Totals .. .. | 97 | 36 | 61 | 28 |

From the figures given above the honours for the first year go to Otago-Southland with 9 flocks accredited from 13 original applications.

## *Applications Withdrawn*

A large proportion of those who withdrew their applications at an early date did so after reading the conditions more closely. Many desired to breed from pullets and had not realised that the conditions restricted breeding from pullets to 25 per cent. of the total breeding flock. Others were warned by Poultry Instructors that the standard of their breeding stock was not sufficiently high for accreditation purposes. Some of these producers are hoping to have better breeding stock for 1946 and will again apply for accreditation.

## *Accrediting Flocks*

Birds passed for accreditation were stamped with a green paint mark on each wing. It is confidently anticipated that sealed metal leg-bands will be available for marking birds in 1946. The majority of flocks which failed on inspection this year did so in the matter of the minimum weight for a breeding hen. Large numbers of White Leghorn hens scaled only between 4 and 4¾lb., whereas the minimum laid down for this breed is 5lb. Where flocks contained a high percentage of under-weight hens the owner invariably withdrew his application on the score that it was not practical for the current season to discard so many breeding birds. Most producers had decided upon the minimum number of breeders required, and if this number was not eligible for accreditation, then the flock was withdrawn from the plan. The question of minimum weights and the time of year at which the birds should be weighed brought forth the most criticism of the conditions as applied in 1945. A careful survey of the opinions expressed by the four Provincial Associations of Registered Poultry-keepers is now being made, and undoubtedly amendments to the conditions governing the plan will be made for 1946. It is hoped that the conditions laid down for operating the plan will be available in September or October next. Amendments may be made to overcome serious difficulties and justifiable objections experienced in 1945, but there will be no attempt to lower the standard of stock required under the plan in order to get more flocks accredited. Poultry-farmers may have to make some sacrifices to attain the standard required. There must be no "watering down" of the plan to a level which will make accreditation easy. Such a policy would entirely destroy the whole object of a poultry flock improvement plan, which is essentially intended to raise the standard of the birds accredited.

In conclusion it may be stated that the plan has produced much interest and controversy among poultry-farmers in all districts—a very healthy sign. Both the New Zealand Poultry Board and the Department of Agriculture confidently anticipate that the plan will receive greater support in 1946 and that many more flocks will be accredited by this time next year.

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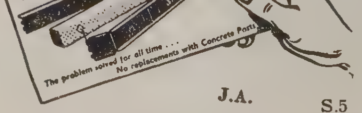
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The problem solved for all time... No replacements with Concrete Posts

# VETERINARY NOTES

## Non-contagious Skin Diseases of the Horse

HORSES frequently suffer from diseases of the skin, which, if neglected, may lead to serious consequences. Some of the more common of the non-contagious diseases are as follows:—

### *Mud Fever*

Mud fever is caused by allowing the legs to become caked with mud and remain in a more or less damp condition. This trouble is more frequent in some localities than in others. If the legs are neglected, small pimples form on the skin, and in advanced cases the hair may come off.

**Treatment.**—The legs should be cleaned with a weak disinfectant and thoroughly dried, and a lotion consisting of lead acetate 2oz., sulphate of zinc 2oz., and water 2 pints should be dabbed on the legs once or twice daily.

### *Urticaria, or Nettle Rash*

Small areas of the skin of horses suffering from urticaria become suddenly raised in patches, which occasionally disappear almost as quickly as they appeared, but they usually persist for some time. Stinging nettle will produce similar symptoms, hence the name nettle rash. The complaint is usually caused by errors in diet—e.g., over-feeding and under-exercising. Horses that have been rested over the week-end on a full working diet are always in danger of contracting this trouble.

**Treatment.**—Treatment is simple, and consists of a change to a laxative diet and a course of Epsom salts for a day or two.

### *Grease*

Grease occurs chiefly among heavy horses, but it is occasionally found in the lighter breeds. It occurs around the sweat glands of the fetlocks and pasterns, sometimes extending up the tendons. There is an increase in the amount of sweat locally, and the skin becomes thickened and gives off a smelly discharge. The legs should be thoroughly cleaned with a strong disinfectant. As this trouble may develop into a serious condition, help should at once be sought.

### *Warts*

Warts may be found on any part of the body, but the most common places are inside the hind legs, on the sheath, and around the lips. They do not cause any inconvenience, except when in a position that permits of chafing. They sometimes disappear without any treatment. If they are very numerous and persist, those that have a distinct neck can be removed by tying a piece of silk thread tightly round the neck. The wart will then fall off in a few days. If there is no neck to the warts, careful application of a caustic pencil will remove them.

### *Cracked Heels*

The cause of cracked heels is somewhat obscure. It may be due to parasites or micro-organisms. Preventive treatment is most important, for if the trouble is neglected and allowed to become chronic, curative treatment then presents the greatest difficulty. Heels, therefore, should at all times be kept thoroughly dry, and, if the condition appears, the heels should be cleaned with a weak disinfectant, thoroughly dried, and zinc ointment applied.

◆

## Lice on Horses

OF the diseases affecting the skin of horses probably the most common is that produced by infestation with lice. There are three species of lice which the horse may harbour, but the treatment is similar for all.

Lice may attack a horse at any period of the year, but during the winter they breed more rapidly and are seen in greater numbers. During the spring, when the long coat is shed, the condition becomes less troublesome. Long, dirty coats and lack of grooming are conditions which

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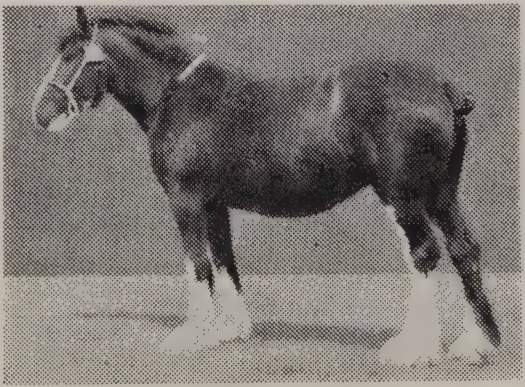

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are favourable for the multiplication of the parasites.

Horses in any condition may become infested with lice, although it is a common belief that animals in poor condition are more subject to infestation. The fact that the severe skin irritation produced by the presence of lice and the restlessness caused by their activity leads to loss of condition probably explains the general impression that only poor-conditioned animals suffer as a result of the parasites.

### *Suitable Dressing*

In attempting to get rid of lice on horses the selection of a suitable dressing is very important, but the success or otherwise of the treatment depends on the manner in which the dressing is applied. The material used should come in contact with every part of the skin, otherwise reinfestation will take place from the areas which have been left untreated. Further, horse covers or harness used on infested horses have to be disinfected.

Posts on which affected animals may have rubbed or other objects, such as feed-boxes, edges of mangers, etc., where the lice may take refuge may lead to reinfestation if they are not properly disinfected.

The horse should be clipped all over before dressing is applied to the skin. The hair removed should be collected and burned, and a suitable day should be selected for dressing.

### *Suggested Treatment*

The following treatment, if carefully carried out, should give good results: Kerosene, 1 pint; soap, 1lb.; water, 1 gallon. Boil the soap and water together until the soap is dissolved, and then add the kerosene. Mix thoroughly, or, better still, put the mixture through a spray pump from one bucket to another to ensure that the kerosene is thoroughly emulsified. Then dilute by the addition of water so that the mixture, when ready for use, amounts to 4 gallons. When cool enough scrub the emulsion so formed into the hair with a dandy brush, care being taken that the dressing gets down on to the skin.

Dressing should be repeated within 10 days to kill any lice which have hatched out of eggs which are not destroyed by the first application. During the dressing the emulsion should be stirred frequently to prevent the kero-

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sene from separating out. If this should happen, there is a possibility of taking the hair off the horse.

If a cover has been used on the horse, it should be soaked in strong dip and hung out in the air to dry in order to kill any lice which may be present in the cover or have burrowed into the lining. This is a point which is often overlooked in the treatment of horses for lice and one which, if neglected, may lead to reinfestation of the animal. The treatment with the soap-kerosene emulsion will be found equally satisfactory in the eradication of lice from cattle.

◆

*Answer to Correspondent*

## Horses with Itch

**"M.H.A.," Owaka:—**
Could you recommend a suitable treatment for 3 young horses in good condition who are suffering from itch and are always rubbing. There is no scab or scale on them, and no sign of grease. I will be glad if you can suggest something that will relieve the trouble.

LIVESTOCK DIVISION:
Your description suggests first the possibility of the horses being infested with lice, a suitable treatment for which has frequently been described in the "Journal of Agriculture."

I suggest that you dissolve 1lb. of soft soap in some boiling water, diluting it sufficiently with cold water to make a gallon of soap solution, and to this add one pint of kerosene. When cool this emulsion should be kept well stirred and used to dress the horses all over, using some suitable brush for the purpose so that the emulsion is well applied to the hair and skin.

If there is no sign of lice, the itch may be relieved by just washing with strong salt solution; and one of the following powders could be given twice daily in the feed, for three or four days, to each animal:—

Acidi arseniosi: 1 dram.
Ferri sulph. exsicc.: 1½oz.
Sodii bicarb.: 4oz.
Pulv. anisi.: 3oz.

The above prescription will make 12 powders.

◆

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# Interim Sheep Returns

INTERIM figures supplied by the Government Statistician disclose that New Zealand's sheep population has increased during the past 12 months by approximately 690,000. Details of distribution are as follows:—

| Sheep District. | April 30, 1945. | | Increase or decrease over 1944. | |
|---|---|---|---|---|
| Auckland .. .. .. .. .. .. | 4,883,000 | | + 90,000 | |
| Poverty Bay, Hawke's Bay .. .. .. | 7,160,000 | | — 99,000 | |
| Wellington, Wairarapa, West Coast .. .. | 6,998,000 | | +151,000 | |
| North Island totals .. .. .. .. | | 19,041,000 | | +142,000 |
| Nelson, Marlborough, Westland .. .. | 1,403 000 | | + 32,000 | |
| Canterbury, Kaikoura .. .. .. .. | 5,935,000 | | +286,000 | |
| Otago, Southland .. .. .. .. .. | 7,511,000 | | +230,000 | |
| South Island totals .. .. .. .. | | 14,849,000 | | +548,000 |
| Dominion totals .. .. .. .. | | 33,890,000 | | +690,000 |

# Slaughterings of Stock

THE following returns of slaughterings of stock at meat export slaughterhouses and abattoirs for the months May-June, 1945, have been compiled by the Livestock Division:—

| District. | Cattle. | Calves. | Sheep. | Of which Ewes were | Lambs. | Pigs. |
|---|---|---|---|---|---|---|
| **North Island.** | | | | | | |
| Meat-export Slaughterhouses— | | | | | | |
| Auckland .. .. .. | 77,510 | 16,913 | 71,325 | 41,300 | 114,367 | 51,034 |
| Poverty Bay-Hawke's Bay | 28,338 | 1,580 | 142,095 | 68,718 | 209,338 | 6,251 |
| Taranaki-Manawatu .. | 45,778 | 3,577 | 91,897 | 43,612 | 203,515 | 29,319 |
| Wairarapa-Wellington .. | 21,609 | 1,389 | 70,719 | 31,444 | 136,540 | 6,323 |
| Totals .. .. .. | 173,235 | 23,459 | 376,036 | 185,074 | 663,760 | 92,927 |
| Abattoirs .. .. | 20,529 | 5,352 | 94,748 | 17,202 | 15,265 | 7,197 |
| North Island Totals .. | 193,764 | 28,811 | 470,784 | 202,276 | 679,025 | 100,124 |
| **South Island.** | | | | | | |
| Meat-export Slaughterhouses— | | | | | | |
| Nelson-Marlborough .. | 1,098 | 4 | 12,677 | 7,759 | 62,459 | 3,144 |
| Canterbury .. .. | 4,677 | 3,283 | 176,648 | 156,588 | 710,995 | 6,408 |
| Otago-Southland .. .. | 8,061 | 120 | 173,807 | 156,812 | 735,885 | 1,540 |
| Totals .. .. .. | 13,836 | 3,407 | 363,132 | 321,159 | 1,509,339 | 11,092 |
| Abattoirs .. .. | 9,771 | 1,755 | 45,913 | 17,901 | 6,631 | 2,075 |
| South Island Totals .. | 23,607 | 5,162 | 409,045 | 339,060 | 1,515,970 | 13,167 |
| **Dominion.** | | | | | | |
| Meat-expt. Slaughterhouses | 187,071 | 26,866 | 739,168 | 506,233 | 2,173,099 | 104,019 |
| Abattoirs .. .. .. | 30,300 | 7,107 | 140,661 | 35,103 | 21,896 | 9,272 |
| GRAND TOTALS .. | 217,371 | 33,973 | 879,829 | 541,336 | 2,194,995 | 113,291 |
| Same Period, 1944— Meat-export slaughter-houses and abattoirs .. | 177,080 | 32,793 | 871,638 | 577,361 | 2,070,288 | 144,322 |
| Same Period, 1943— Meat-export slaughter-houses and abattoirs .. | 198,830 | 45,564 | 546,363 | 325,557 | 1,455,616 | 76,347 |

# Slaughterings of Pigs

The 23,027 pigs slaughtered at meat-export slaughterhouses and abattoirs during the month of June, 1945, were distributed in weight ranges as follows:—

| | |
|---|---|
| Under 60lb. .. .. .. | 458 |
| 60 to 120lb. .. .. .. | 9,954 |
| 121 to 160lb. .. .. .. | 7,886 |
| 161 to 175lb. .. .. .. | 3,037 |
| 176 to 185lb. .. .. .. | 503 |
| 186 to 200lb. .. .. .. | 345 |
| Over 200lb. .. .. .. | 844 |
| Total .. .. .. | 23,027 |

The grading of porkers was:—
89 per cent. 1st quality, and
11 per cent. 2nd quality; and that of baconers was:—
87 per cent. prime 1's,
10 per cent. prime 2's, and
3 per cent. 2nd quality.

In the different weight ranges the grading was as follows:—

| | *Prime 1's.* | *Prime 2's.* | *2nd quality.* |
|---|---|---|---|
| 121-160lb. .. .. .. .. | 89 per cent. | 9 per cent. | 2 per cent. |
| 161-175lb. .. .. .. .. | 84 ,, ,, | 12 ,, ,, | 4 ,, ,, |
| 176-185lb. .. .. .. .. | 82 ,, ,, | 14 ,, ,, | 4 ,, ,, |
| 186-200lb. .. .. .. .. | 73 ,, ,, | 20 ,, ,, | 7 ,, ,, |

# FODDER CROPS FOR LAMBS

It is estimated that 6,600 tons of lamb are lost to export each year through the inability of farmers to top off those lambs that are not sold fat off their mothers. This could be overcome if farmers who do not grow any supplementary fodder for this purpose would put in an area of rape, chou moellier, or some other suitable crop, and if those who do increased their areas of these crops.

● ● ●

The position is urgent, as

1. *Britain requires every pound of meat that can be produced, and if we are to avoid the export of horseflesh, every pound of beef and mutton will be required.*
2. *By growing this additional crop farmers will be placing their fat lamb production on a sounder basis.*
3. *After the feeding off of rape, etc., land will be in first-class condition for wheat production the following season.*

● ● ●

ARRANGE NOW TO BREAK UP THAT ADDITIONAL LAND AND HELP BRITAIN IN HER HOUR OF NEED.

# SEASONAL NOTES

## Spring Sowing of Pasture

SPRING sowing of grass may commence in September, except in cold late districts. Moisture and sufficient warmth are required for quick germination. In drier districts, or on light land, the aim should be to sow sufficiently early, if conditions of temperature and tilth are satisfactory, to allow for good establishment before dry weather sets in, but the risk is less where a good summer rainfall is usually experienced.

Permanent pasture in the North Island is usually sown in the autumn to avoid spring weed growth and the wetter conditions of spring, which make cultivation difficult on heavy soils. The drier nature of the soil in autumn and the relatively mild winter in the north cause little check to autumn pasture establishment, unless sowing is late. There is, however, often occasion to sow grass in spring, as, for instance, when resowing to pasture after winter roots on a dairy farm.

Spring sowing of pasture is more common in the South Island districts subject to severe winter frosts. In early autumn the land may be too dry for pasture establishment and is generally in some crop, while late autumn-sown grass is liable to severe frost-lift damage, with complete failure of clovers. Large acreages of fodder crops for winter feeding are required, in addition to cash crops on arable farms. In consequence the ground becomes available in spring for sowing the short-rotation pastures required, and the more extensive the cropping in a locality the more regular is the practice of spring sowing grass.

Perennial ryegrass and clover form the basis of seed mixtures sown, affording useful supplementary feed in the first summer and autumn for weaning time or for the dairy cows. Late maturity or delayed utilisation of winter forage crops may result in hurried preparation of the ground for spring sowings, and this is not in the interests of good pasture establishment, especially as the grass is frequently sown with a cover crop.

### *Cover Crops*

As the short-rotation pastures of the arable farms are made to fit into crop rotations, they are often sown with a cereal about September, or autumn-sown wheat during spring cultivation, or with rape in November. Red clover is often established with a cereal, and after harvest the aftermath may be very strong. When sowing with a cereal drill the cereal first and roll before broadcasting the grass seed and fertiliser, which is lightly harrowed in. It is as well to consider whether there is likely to be enough moisture and plant food for both crops, because in dry seasons establishment of grass may be very poor, due to the cover crop taking soil moisture and smothering the grass. The stronger the companion crop the poorer the grass is likely to be, but the practice is justified as it extends the ploughing period on the arable farm where really only one crop a year is possible in the south.

The degree of cover also depends on the cereal used, oats making the greatest demand on soil moisture and forming the densest cover. Both barley and wheat make less shade and require less moisture, giving grass a better chance.

It is seldom advisable to sow permanent pasture with a cover crop, because the practice is apt to bring about permanent weakness in the sward, with heavy loss of feed during the life of the pasture. Careful treatment during the early stages of establishment is essential, because clovers and most species of grass except ryegrass are slow establishing and have little chance with a strong companion crop in competition. Even the vigour of ryegrass is depressed by a cereal. Where early grazing of the cover crop is necessary, and if the ground should become soggy during stocking, the young pasture might be badly poached. If grazing were left for better soil conditions, the cover crop would have a strong smothering effect, and leave the pasture open and weak eventually. Under some conditions, however, a thinly-sown cover crop might be justified. For instance a naturally loose soil, exposed to strong winds, would be given some early protection and, after grazing, a desirable degree of consolidation.

### *The Seed-bed*

Good establishment of permanent pasture requires a moist, warm seed-bed, fine, firm, and free of surface weed seeds. The grass seed bed can rarely be too firm, so tillage operations should be directed towards obtaining compactness of the soil to the full depth of the ground cultivated, for good root hold and moisture retention.

In ploughing, a narrow furrow packs better. Rolling the furrows after ploughing transmits pressure to the bottom of the furrow slice, and is desirable in light soils, whereas rolling after the ground has been cultivated will firm the surface and have little effect below. A spongy seed-bed is a frequent cause of poor establishment of both grass and clover. If given sufficient time between ploughing and working before sowing, most soils will consolidate well during cultivation.

Annual spring weeds in the surface soil on infested land are liable to smother the pasture, unless reduced prior to sowing. The majority of these, if allowed to germinate, are readily killed by harrowing periodically, but those germinating with the grass may require later mowing.

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Some weeds such as docks, however, establish in both spring and autumn, but in spring have a poorer chance of establishing in competition with the stronger spring growth of young grass and clover.

When grass seed crops are contemplated it is seldom that a first-harvest crop can be obtained from a spring sowing, but an autumn-sown pasture will often produce a satisfactory crop the following autumn.

### *Methods of Sowing*

For medium and heavy land broadcasting on a rolled surface and covering with light grass harrows is the best method, giving the maximum ground coverage.

Drilling on light land usually gives a more rapid strike and earlier development, as the seed and manure are in direct contact, but unless a 3½in. centre drill is available, drilling suffers from the disadvantage of wide spacing. The seed must be lightly drilled, but must be within the sphere of moisture. Red clover on light land drilled with superphosphate gives a more even establishment and stronger development.

Broadcasting is generally recommended, but if conditions are not sufficiently good, drilling should be undertaken.

### *Seed Mixtures*

A typical seeds mixture for high-producing fattening pastures on well-drained, rich country would be as follows:—

| | | lb. per acre. |
|---|---|---|
| Certified | Italian ryegrass | 5 |
| " | perennial ryegrass | 20 |
| " | cocksfoot | 8 |
| " | white clover | 2 |
| " | Montgomery red clover | 2 |
| " | broad red clover | 1 |
| | Total | 38lb. |

In the warmer districts where paspalum thrives and where the inclusion of this grass is desired the above mixture may be adjusted to contain paspalum at 5lb. and cocksfoot at 5lb. per acre, or the whole of the cocksfoot could be replaced by 8lb. paspalum.

In the South Island, where timothy and crested dogstail are desirable constituents, the Italian ryegrass in the above mixture could be replaced by 3lb. per acre of dogstail and 2lb. per acre of timothy, while the cocksfoot could be increased to 12lb. per acre. This would give a more diversified mixture. On the other hand there are limited areas of heavy, fertile soils in the North Island where the tendency is for simplification of seed mixtures because a complicated seeding usually terminates in a ryegrass-white clover sward. On such areas a sowing of 40lb. of certified perennial ryegrass plus 2lb. certified white clover would be sufficient.

| SHORT-ROTATION PASTURES: | 2-3 years. lb. per acre. |
|---|---|
| Italian ryegrass | 15 |
| Perennial ryegrass | 15 |
| White clover | 2 |
| Broad red clover | 4 |
| Total | 36lb. |

H1 ryegrass should prove a useful type for short-rotation pasture sowings when available in quantity.

| Temporary Pasture. | lb. per acre. |
|---|---|
| Italian ryegrass | 25 |
| Broad red clover | 6 |
| Total | 31lb. |

**Note.**—All seed should be bought on purity and germination certificate, while a good strain is guaranteed by buying Government certified seed.

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## Pampas Grass

ONE of the pioneers of pampas grass and its greatest advocate today is Mr. A. McClean, of Waitakaruru, who for 20 years has grown pampas grass as a fodder for dairy stock, and it is mainly on account of his enthusiasm that this grass is well established on many farms today. In this brief span of years, however, pampas grass has had its ups and downs, and today it has its enthusiasts and its opponents, as is the case with most new ventures.

A widespread investigation into the pros and cons of this fodder plant is at present being carried out by officers of the Department of Agriculture. Though investigations are not complete, certain facts are known, and as the planting season is now approaching, it will be as well to place these before farmers to enable them to decide just what action they should take with regard to establishing plantations.

No one can dispute the fact that pampas grass, provided it can produce the feed in quantity and quality, does away with the labour and drudgery of feeding out, particularly during the winter months. From this point of view, particularly at the present time, it has very definite advantages. The question then hinges round quantity and quality of feed produced. As far as quantity is concerned, there is fairly extensive evidence from farmers' experiences that, provided the plantation gets reasonable treatment, pampas grass compares favourably with many other fodder crops or supplementary feeds, and actually produces a greater tonnage per acre than some. This then leaves the question of quality of the feed produced, and here there is a divergence of opinion. Certain work of an exploratory nature, supported by analysis and trial, has not been very encouraging, but on the other hand a wide range of farmers, many of them farmers of standing with high-class pedigree stock, contend that from a quality point of view pampas grass is every bit as good as first-class hay. This divergence of opinion makes it obvious that extensive experimental work under practical farm conditions requires to be carried out, and the Department of Agriculture has in hand the establishing of experimental plantations in different parts of the North Island where the various contentious points in connection with this fodder can be investigated. One point in particular that requires elucidation is in connection with the value of strain. In practically all farm crops and pasture plants strain or variety is of the utmost importance, and it would be strange if in connection

**A five-year-old stand of pampas grass which has been fed off eight times. The growth shown is five months after the last feeding off.**
[Dept. of Internal Affairs photo.

with pampas grass strain meant nothing. Mr. McClean, who has made a special study of strain, is most emphatic that strain is of the utmost importance.

However, while from the department's point of view the points already discussed require further investigation, sufficient is known of pampas grass to warrant its commendation to farmers generally. Some points in connection with the planting and general management of pampas are as follows:—

1. To get the best results land of reasonably good quality should be planted. Avoid the mistake of many farmers who, under the impression that pampas grass will grow anywhere, planted pampas in that odd dirty corner.
2. Prepare the ground thoroughly just as you would for any other farm crop.
3. Select well-rooted plants.
4. Plant in the spring in rows 6 to 8ft. apart.
5. Keep the area worked during the first season and free from weed growth.
6. Never let the plants flower.

An extensive article covering all aspects of pampas grass will be published in the near future.

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# Preparation for Hay and Silage

OVER half a million acres, chiefly permanent pasture, will be closed again this spring for hay, and to a minor extent for silage. Early decision should be made as to areas required for hay and silage, and modified as necessary in the case of later paddocks, depending on seasonal conditions. With commencement of spring growth earlier paddocks should be closed first for silage, followed later by paddocks required for hay as they become available. With the more rapid growth on reduced areas left for grazing, the stock should be concentrated in larger mobs and grazed rotationally. Before closing a paddock for hay, pasture growth should be evenly but not closely grazed by a large mob of stock for a short period only to avoid weakening early grasses such as ryegrass.

Those intending to topdress should do so at this stage, but before the paddock is closed it should be harrowed thoroughly to spread stock droppings and accumulations of roughage left over from winter feeding, avoiding undue injury to the sward. Some types of harrows, while beneficial on a sod-bound pasture, have a severe tearing action, which damages a good sward. Hoof cultivation, on the other hand, is largely consolidation, which stimulates many pasture plants, especially ryegrass. During harrowing, collect all pieces of baling wire or other obstructions which are likely to interfere with the mower when cutting the crop.

Hay paddocks should be closed so as to require cutting at a time when reasonably good harvesting conditions may normally be expected for a particular district. In this connection the stage of growth and the vigour of the pasture must be taken into account, because a closely-grazed sward will be comparatively slow in coming away. The type of pasture will also influence the best time for closing. In general, late closing increases the proportion of clover to grass, more especially with early grasses such as ryegrass. Where cocksfoot or paspalum are the main grass constituents growth is later and very early closing has no advantage, as is the case with ryegrass swards.

**Quick-growing, vigorous pasture yields a better hay crop, and a relatively short growing period is desirable. The pasture should be closed at a time that will favour the production of good, even-quality herbage, without undue stemmy growth by some species.**

Haying of grasslands has a tendency to leave swards more open, affording weeds a better chance to establish, consequently it is not a wise policy to hay a paddock frequently. Following a heavy yield of hay recovery of the sward may be very slow, re-

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quiring careful treatment during the following winter and spring.

### *Harvesting Equipment*

If not already attended to, all gear required for haymaking or ensiling should be overhauled. Particular attention should be paid to thorough adjustment of the mower and replacement of worn parts. All elevating gear, especially ropes, should be checked, not only to prevent expensive delay at harvest time, but also to reduce the risk of accident.

Where silage is to be made existing pits and trenches should be inspected, and if they have to be constructed, the work should be done while the ground is moist in a place convenient for harvesting and feeding out.

## Sowing the Pea Crop

PEAS are grown in New Zealand without the necessity for a subsidy, and over half the produce is exported. In a rotation with cereals they are a valuable crop for building up soil fertility. Labour in harvesting the crop has been greatly reduced by the use of the header harvester.

In the season 1943-44 44,690 acres of peas were threshed, the average yield being 20 bushels per acre. Distribution was as follows:—

| | Per cent. |
|---|---|
| Canterbury | 66 |
| Nelson and Marlborough | 20 |
| Otago and Southland | 10 |
| North Island | 4 |

Areas and prices have shown fluctuations from year to year according to overseas demand and to local conditions, while most of the crops are grown on contract with the mercantile firms.

### *Types of Seed*

**Garden Peas:** These are used for garden lots, local use, and limited canning. Greenfeast is the most popular variety, with the earlier William Massey next. Stratagem is a later variety with a lower yield than Greenfeast.

**Field Peas:** The common varieties grown are Blue Prussian and Partridge, while limited areas of Marrowfats and Mammoth Blues are also grown.

**Partridge** is in normal times the most widely-grown variety and forms the bulk of peas exported. While commanding the lowest price, the variety has the highest yield and is the most adaptable, being grown on light wheat and barley lands. In New Zealand Partridge peas are used for split peas, but are chiefly utilised by stock as grain or meal or as a late summer-autumn forage. They are also sown with a cereal for a hay crop.

**Blue Prussian** is at present the most widely-grown field pea and, together with Marrowfat and Mammoth Blue, is used as a boiling pea or for canning.

**Mammoth Blue** (Blue Prussian-Harrison Glory hybrid) and **White Prolific** (Blue Prussian-Greenfeast hybrid), introduced in 1943 by the Agronomy Division, may eventually replace Blue Prussian and White Ivory varieties respectively, as their yields are higher.

### *Growing Conditions*

Peas will yield heavily under favourable soil and seasonal conditions, but garden peas are the most exacting. Crops thrive best on cool, well-drained, free loams, but light clay soils are unsuitable. Good drainage is an essential condition for a thrifty crop, and a wet spring is undesirable. A moderately cool climate is most suitable, and actually the crop will withstand heavy unseasonable frosts without damage, except during the flowering period.

### *Sowing*

Peas are usually spring sown, from August (or earlier in the North) until the end of November. Wet conditions following sowing are liable to ruin germination, but early sowing, provided the ground is not too wet or cold for germination, will allow for the long period of growth required, especially with late varieties such as Partridge.

The seed-bed should be fairly compact and fine underneath rather than on the surface. The usual practice is to drill every coulter sowing 3 to 4 bushels of seed per acre, adopting the heavier sowing for larger seed.

If trouble is anticipated from birds, sow deeply to reduce dislodgement of seed and plants.

Superphosphate to the extent of the ration should be drilled with the seed. A dressing of lime, a fortnight before sowing, would be an advantage in promoting nodular development in a soil requiring lime.

### *Seed Treatment*

Every means should be adopted to grow the crop as vigorously as the season and soil conditions will allow. Seed treatment is an additional insurance, especially when the crop is sown under moist conditions. Peas are susceptible to a number of diseases collectively known as root rots, which develop rapidly in a cold, badly

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drained soil. Stunted patches in wet places of a field of peas become sources of infection.

While not taking the place of bad drainage, seed treatment with a mercurial dust at 1½oz. per bushel is strongly recommended and will have a noticeable effect in stimulating establishment and reducing disease incidence should conditions not prove ideal in the early stages.

### *After-cultivation*

Normally the crop should strike after about 10 days to a fortnight, depending on conditions. When the peas are 3in. to 4in. high they should be harrowed to destroy weeds and break caked soil surfaces. Light harrowing may be continued until the peas begin to run. Damage to the crop by harrowing is more apparent than real, but travel should be slow. No further attention will be required until harvest time, about January or later, unless rogueing of off-type plants is undertaken.

## Preparations for Maize

PRELIMINARY tillage work for the crops in maize-growing districts should be under way. Lea land which has been skim-ploughed should be worked and then deep ploughed. Rich alluvial flats should be ploughed about 7in. to 8in. deep as soon as possible.

In the Gisborne district it is frequently advisable and even necessary to run over heavy ground with the roller immediately after ploughing to break up clods and avoid baking of furrows.

Discing and harrowing at the appropriate time will work the land down for a deep, well-prepared seed-bed, fine underneath, ready for sowing at the most suitable period for the district.

When maize follows maize the old stalks are a complication when working the ground. One way of dealing with this problem is by use of the tine harrows when the weather is dry. The harrows quickly become choked with stalks, which, if set alight and the harrows kept moving, will spread the fire. When cattle have been turned in to consume maize stalks on heavy ground pugging of the soil may render subsequent cultivation difficult.

The stalks are often turned in without any attempt at burning, and some growers also roll before ploughing. Ploughed-in maize stalks rot very slowly and hinder cultivation of the new crop. However, by turning a wide, flat furrow a better job can be made of burying the stalks.

Ploughing in maize stalks. Note the huge crib in the background.

## Farm Records

FARM records must be sufficiently clear and methodical for the purposes of the farm, of the accountant, the banker, and obligations to the State.

### *Bookkeeping*

The average farm does not require an elaborate system of bookkeeping. The simplest method is to pay all receipts into the bank, and make all payments by cheque, entering a complete record on the butts. Where the farmer has to deal through a stock and station agent the quarterly statements serve the same purpose.

To compile a profit and loss account and annual balance-sheet an accountant will also require records such as livestock numbers at the end of each financial year and amounts due to and owing by the farm, details which could be procured from the farm diary.

### *Farm Diary*

Every farmer should keep a complete diary with entries made at the end of each day. If the diary is adequately written up, sufficient information will be contained therein for all purposes. Each entry should be concise, serve some useful purpose, and be systematically entered under suitable headings. For instance, under "Stock" record such details as services of breeding stock, lambing, stock numbers purchased or sold; under "Feeding" supplementary feeding dates and quantities, grazing details of paddocks, and stock numbers. "Farming Operations" should include topdressing, tillage, sowing, and harvesting. Labour might be noted against various operations, but casual labour times must be recorded.

Records of weather or other items may be useful. Some may also keep notebooks corresponding to paddocks for the various crops, treatments, and grazing.

**In making records remember the Chinese proverb, "The strongest memory is weaker than the palest ink." Write down all you wish to retain and do not put off today what you may not be able to do tomorrow.**

—*E. M. BATES, Instructor in Agriculture, Alexandra.*

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## ORCHARD AND VINEYARD

# Essential Spring Work

PRUNING will now have been completed by most orchardists. If not, the work should be pushed ahead as speedily as possible in order that the orchard can be cleared of all prunings and other rubbish, ready for the spring operations of spraying, cultivation, and manurial treatment. Success in spraying is dependent largely on strict attention to details and should be carried out in accordance with reliable recommendations.

### *Disease Control*

Some of the essential points in disease control are:—

1. See that the spray outfit is in thorough working order and capable of the required output and pressure.
2. Care must be exercised in the measuring and weighing of all spray materials and in the mixing prior to application.
3. All portions of the tree should be thoroughly covered.
4. Only certified materials should be used.

Disease control is one of the most important orchard operations and demands constant attention throughout the season. Relaxation may prove costly not only in the failure to produce high-quality fruit, but in the extra cost of packing and grading.

**It is recognised by all commercial orchardists that the early or foundation sprays up to the blossoming period are of vital importance for the control of fungous diseases, and although there is a tendency in some districts to delay the first spray as late as possible, this cannot be recommended. Spores of fungous diseases as well as insect pests harbour under bud scales, rough bark, dead twigs, etc., and are only awaiting favourable conditions to commence their destructive work. At this time of the year much stronger dilutions can be applied to fruit trees than later, therefore a good application early, when the trees are just starting into growth, will often prevent trouble as the season advances.**

When to spray and what dilutions to use will be exercising the minds of growers during the latter end of the present month and early in September. Actually growers should be guided largely by the results obtained during the previous season, and if these were successful, there should be no occasion to alter their programme. There is a decided variation in local conditions and sprays recommended in these and subsequent notes are intended to apply under average conditions. Where trees are in a debilitated state through lack of general attention and other causes it may become necessary to modify the standard recommendations, but not to an extent that would impair disease control. Therefore, every effort should be made to bring debilitated trees back to a good state of health by paying attention to other essentials. Powdery mildew, for instance, is more often the result of general debility, rather than the cause. The trees can best be brought back to a good state of health by hard and detailed pruning, better cultivation, application of adequate fertiliser, and attention to drainage.

Winter oil at a dilution of 1-20 is recommended for the control of scale insects and red mite. It is important to obtain a thorough coverage of the trees where San Jose scale is present. Where there is no evidence of scale insects the use of winter oil for red mite control depends on the extent to which eggs have been deposited during the previous autumn. Care should be taken in using winter oil to see that there is no bud movement, otherwise damage may occur.

The use of Bordeaux mixture 5-4-50 or lime sulphur 1-30 as a base or foundation spray is recommended for the control of fungous diseases of both pip and stone fruits. Bordeaux mixture is recognised as the better fungicide and should be used except possibly for varieties which are known to be susceptible to spray injury. However, even with these varieties, if applied at the correct time, possibly a little nearer the delayed dormant stage than the greentip stage, no damage should result.

### *Cultivation and Drainage*

Good and early cultivation is very necessary for the conservation of moisture, and if this work has not already been done, it should be proceeded with as soon as conditions are favourable. Cultivation should not be done under wet conditions. Cover or green crops should be ploughed in as soon as possible so that the trees may benefit from these crops when they start growth in the spring.

Trees should be dug round to eliminate weeds or other volunteer growth providing coverage for bronze beetle and other insect pests. Drains should be inspected and where necessary should receive attention. Where areas are wet lying drainage should be provided, as trees in these areas are often affected with wet feet.

### *Grafting*

Where growers are contemplating re-working fruit trees they should select scion wood from trees of good growing and cropping habits and as far as possible free of disease. Grafting operations should not commence until the bark lifts freely.

—*D. J. HOGG, Orchard Instructor, Mapua.*

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# HOME GARDEN NOTES

## Work for September

> *"Let the will of a human being be turned to any particular object, and it is ten to one that, sooner or later, he achieves it."*
>
> *—George Borrow (in "Lavengro.")*

SEPTEMBER is, or should be, the outstanding month of the year for activity in the vegetable garden. In almost all parts of the Dominion where vegetables can be grown it is safe to sow seeds of almost every variety. Seeds of varieties which may be classed as tender or half-hardy should be sown under glass and the seedlings protected until the weather becomes warmer.

When the garden plan has been drawn up, and the planting programme decided on, it is advisable to secure the season's supply of seed. When balanced against the value of the crop produced, cost of seed will be found to be almost an insignificant factor. The moral should be to buy the best seed obtainable.

To obtain the best results more than usual care is necessary in preparing the seed-bed, which should be made up of good potting soil, preferably sterilised.

### *Potatoes*

From mid-August onwards seed potatoes may be planted in most home gardens without undue risk of frost damage. If there appears to be the chance of a frost after the foliage has appeared above ground, the tops may be protected by covering, preferably with a wooden box. Sacking and scrim are sometimes used, but if they are permitted to touch the foliage damage by the frost is almost certain.

Fertiliser for all garden purposes this season may be in short supply, and it is more important than ever that the area to be planted with potatoes, as indeed with all crops, should be especially well worked. Thorough cultivation before setting the potato seed will do much to assist in the release of plant food which may be in the soil.

For potato cropping in the garden rows should be spaced not less than 2ft. apart. This is the minimum distance which will permit the banking with soil necessary for protection of the tubers during the latter stages of development.

### *Tomatoes*

If the recommendations made in the July issue of the "Journal" with regard to sowing tomato seed have been put into practice, the seedlings will now be ready for pricking out into boxes, which should be 2½ to 3in. deep and of a size suitable to hold the required number of plants. A box made the length and breadth of an ordinary apple case will accommodate 36 to 48 plants. To produce strong plants with a good rooting system the smaller number is preferable.

After pricking out, the box should be placed under a glass frame of some kind, even if it is an old window. This protection is necessary during the early stages of growth. For the first two or three days the plants should be shaded from bright sunshine, either with light coloured paper or scrim—not sacking. Whatever covering is used, it should be placed on the **outside** of the glass.

### *Celery*

Early in September celery seed of the Golden Self-blanching variety may be sown. When growing plants for the home garden the seed should be sown in boxes. As celery seed is slow to germinate, taking from 2½ to 3 weeks, special care is necessary in preparing the soil in the box, and also in sowing the seed. When the seedlings are 1½ to 2in. high they should be pricked out either into boxes or in a sunny, well-sheltered corner of the garden. Boxes for pricking out should not be less than 6in. deep, which will allow for good root development. A distance of 2in. each way between the plants will give ample room to grow strong, stocky plants for subsequent transplanting.

### Fertilisers by Volume

#### HANDY MEASURES OF SMALL AMOUNTS

(From the "N.S.W. Agricultural Gazette.")

Superphosphate, sulphate of ammonia, nitrate of soda, and ready-mixed fertilisers:—

1 teaspoon piled up = ½oz.
1 dessertspoon piled up = 1oz.
1 tablespoon piled up = 2oz.

For potash the spoon should be level.

For blood and bone or dried blood the spoon should be heaped as high as possible.

Liquid fertiliser:—2oz. sulphate of ammonia or nitrate of soda to 4 gals. water.

½oz. per sq. yd. = 1½cwt. per acre (approx.)
1 " " " " = 3 " " " "
2 " " " " = 6 " " " "
3½ " " " " = 10 " " " "

With drills 3ft. apart 1lb. per 22 lin. yds. = 2cwt. per acre (approximately).

### *Carrots*

Carrot seed may be sown for an early maturing crop in gardens not affected with the carrot rust-fly. Early Short Horn is the variety recommended. Where it is intended to grow a main crop of carrots for autumn and winter use it is advisable to grow only a small quantity of the early variety. Wherever practicable the home garden should be free of carrots from mid-November to mid-January, as it is during this period that the carrot rust-fly may start its depredations.

### *Parsnips*

An early sowing of parsnips may be made, the roots of which should be used as soon as they are a suitable size, seed of the main crop being sown later. It is not advisable to grow spring-sown parsnips into the following autumn and winter.

### *Cabbage (summer)*

If summer-maturing cabbages have not yet been planted, they should be set out as soon as possible. The variety specially recommended is Golden Acre. In a well-prepared, fertile soil, and with ordinary attention, good plants of this variety will grow without interruption and follow on after those that may be grown for early spring cutting. According to the size of the bed, rows may be spaced from 18 to 24in. apart, and the plants set as close as 14in. in the row. Although Golden Acre does not grow very large, cutting out every other cabbage when harvesting will benefit those remaining.

Copenhagen Market is another compact-headed variety of summer cabbage. It grows somewhat larger than Golden Acre, and should not be planted closer than 18in. in rows which it is not desirable to space less than 2ft. apart.

### *Cauliflower*

Periods of cold weather may have slowed up the growth of cauliflower

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plants, and it is not desirable that this condition should be allowed to continue. To secure the best results from this early planting of cauliflower, the plants must be maintained in good condition. The soil in which they are growing should never be permitted to become water-logged, nor will unusually dry conditions be helpful towards maturity at the proper time. Any attempt to "force" this crop by the use of nitrate of soda or sulphate of ammonia may prove disastrous.

If the fertiliser mixture, as previously recommended, has been used, regular shallow hoeing, with good weed control, will largely contribute to the production of desirable curds.

### *Asparagus*

Weeds should be rigorously destroyed among asparagus plants, and on well-established beds it is advisable to watch towards the end of September for the appearance above ground of the first spears. As soon as this is noticed nitrate of soda may be broadcast over the bed at the rate of 1oz. per sq. yd. and lightly worked into the soil. If preferred, this application may be made in liquid form by using 1oz. to a gallon of water. If more than one application of liquid manure is to be made, ½oz. per gallon should be used.

### *Rhubarb*

One- and two-year-old roots of rhubarb which have been well looked after should now be showing good growth, and similar treatment to that recommended for asparagus may be given. Deep hoeing among the roots is not advisable, as many of the main feeding rootlets can be destroyed by other than very shallow cultivation. Stalks should not be pulled when very small. If permitted, and always assuming manure to have been applied generously, the stalks will grow quickly and will be much more satisfactory then for culinary use.

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### *Cape Gooseberry*

With berry fruit now bringing high prices, making jam much more expensive, a trial planting of cape gooseberries might be made. Seed may be sown and the seedlings treated and grown in much the same way as tomatoes. The plants are frost-tender, and while growing should not be exposed to unduly cold temperatures. Blood and bone manure worked into the soil at the rate of 3 to 4oz. per plant, with a little potash or a good supply of wood ashes, will be adequate. Cape gooseberries are not recognised as gross feeders. Plants may be set 3ft. apart each way, or rows 4ft. apart with 2ft. spacing in the row. The plants require a reasonable amount of shelter, but shade will induce blight. When spraying tomatoes make a little extra Bordeaux mixture and spray the cape gooseberries at the same time.

### *Lettuce*

For supplies to be grown in the ordinary home garden it is not desirable to make large sowings of lettuce seed. A mere pinch of seed, sparsely sown at 2 to 3 week intervals, will be found to produce sufficient plants for ordinary requirements. Good plants from a previous sowing will now be ready for setting out. On heavy soil in "late" districts it is advisable to make the early planting on a raised bed, which will give the young plants a much better chance of an early start with consequent earlier maturity. For this planting, particularly, and to avoid disease which frequently occurs where continued damp conditions obtain, the soil should be kept well stirred round the base of the plants.

### *Beetroot*

Seed of any of the early Egyptian or semi-globe varieties of beetroot may be sown now. Where the roots are to be used before full maturity is reached, rows can be spaced less than 12in. apart and only casual thinning done. Larger globe varieties will be more suitable for later sowing. If the crop is grown to follow heavily-manured spring cabbages, the only fertiliser which may be necessary will be a dressing of superphosphate, 2oz. per sq. yd., broadcast between the rows when the plants are 2 to 3in. high. It should be lightly hoed into the soil immediately after the application is made.

### *Spinach*

A sowing of a prickly-seeded variety of spinach should be made while the weather is relatively cool—spinach is essentially a cool-season plant. Before attempting to grow spinach it should be known whether the soil is well supplied with lime. If it is not, a heavy application—4 to 8oz. per sq. yd. of agricultural lime (carbonate of lime)—should be made.

### *Blood and Bone Manure*

It is now known that this fertiliser, which is usually in keen demand at this period of the planting season, will be in short supply. As protests against allowances or allocations cannot increase the quantity available for distribution, it becomes necessary not only to conserve supplies which may at present be held; but to do everything possible for the maintenance of soil fertility in the garden.

## DON'TS

**DON'T neglect the tomato crop this season. The demand for market supplies will be greater than ever.**

**DON'T consider time used in sterilising a small quantity of soil especially for growing seedlings is wasted. The results will surprise you.**

**DON'T use wood ashes indiscriminately. Keep them dry and apply them only where considered necessary. Save some particularly for tomato plants.**

**DON'T hesitate to use burnt or hydrated lime among lettuce or cabbage seedlings for destroying slugs.**

The incorporation of sulphate of ammonia and lime (not previously mixed together) in the compost heap will hasten decomposition of the material being used. Fowl manure, mixed with superphosphate at the rate of 10lb. of the former to 1lb. of the latter, will also act as an efficient accelerator and make the compost of greater value as a plant food.

Regular cultivation and plenty of water during periods of dry weather will stimulate the availability of fertiliser to plant life. It is also very important that the soil should not be lacking in lime.

—*D. K. PRITCHARD, Instructor in Vegetable Culture, Wellington.*

# NOTES FOR BEEKEEPERS

## Early Spring Apiary Management

CLIMATIC conditions are generally very erratic during this month and temperatures are often too low to open hives. However, in warmer localities where it is possible to take advantage of sunny days, a brief examination of the stores and brood may be made at this time.

**The correctness or otherwise of apiary management in the late autumn will be reflected in the condition of the colonies at this inspection. If each hive, when closed down in the autumn, contained a young queen of good breeding, also a fair population of young bees amply supplied with honey stores and pollen, it should require little or no attention during this month.**

August is early for apiary work, and hive manipulations should be confined to a minimum, otherwise more harm than good will result. While making this initial examination care should be taken to disturb the bees as little as possible and to avoid any undue delay, otherwise robbers may be attracted to the open hive, and there is also a risk of the brood being chilled.

### *Assure Sufficient Stores*

The main essential at this time is to see that each colony has sufficient honey to maintain itself until new nectar can be gathered. Beekeepers should keep in mind that now brood rearing has commenced the consumption of stores will be greater than in the cold winter months and existing supplies can be expected to diminish rapidly. If a colony has less than two or three full combs of honey, a note should be made either to feed or to examine again later. The assessment of food requirements is governed by the strength of the hive and the amount of brood present.

Where the beekeeper has combs of honey in his shed held over from the previous season any necessary feeding will be a simple matter when performed in the following manner. Remove the empty side combs from the hives to be fed, and then make provision for those containing honey to be placed on the outside of the combs containing pollen. The pollen combs should be located on each side of the brood nest. This feeding will excite the bees and may cause robbing if it is carried out in conjunction with the examination of the hives. The best way to prevent this is to manipulate the combs as explained, leaving empty spaces for the accommodation of the combs containing honey. Later, when the bees have settled, preferably in the evening, it is not difficult to insert the combs of honey into the spaces provided without unduly disturbing the bees.

**While honey is the natural and best food for bees, it is also the cheapest feeding medium, and every effort should be made to reserve sufficient honey for all feeding purposes. When honey is not available sugar syrup is an excellent substitute, but this should be fed only to those colonies which are definitely short of stores, otherwise unnecessary brood rearing will be stimulated.**

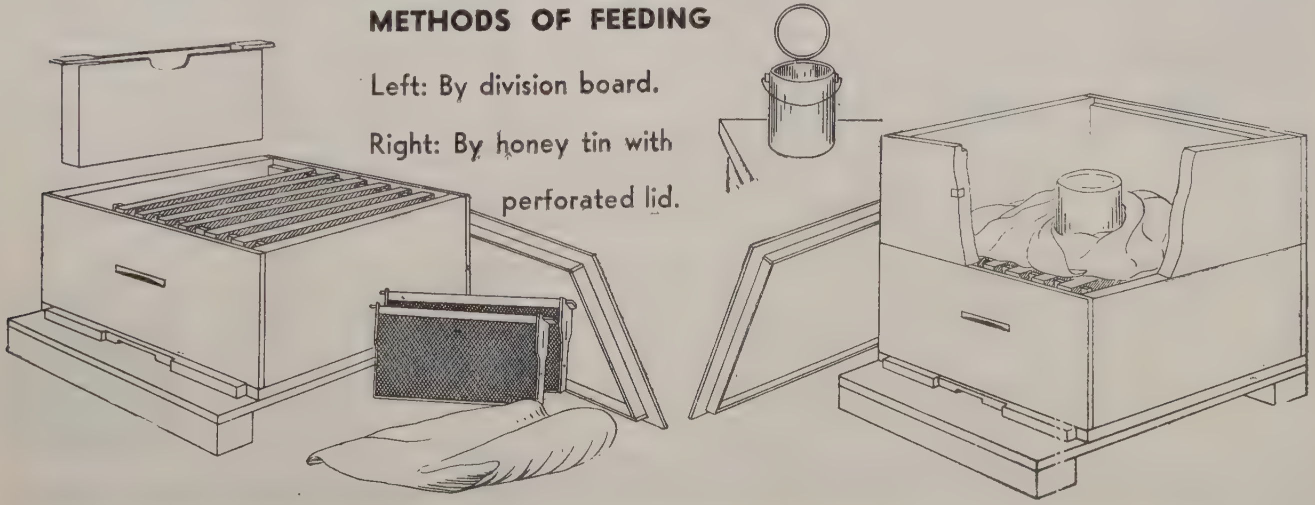
The syrup is prepared by thoroughly mixing equal parts of sugar and boiling water until the sugar has completely dissolved. As burnt sugar is fatal to bees, care should be taken to remove the water, when boiled, from the heating surface prior to the addition of sugar, otherwise undissolved sugar will "catch." While the syrup is in a warm condition, it should be fed to the bees as late in the day as possible.

### *Feeders*

Several types of feeder are used by beekeepers, but the one adopted by the majority is known as the division board, which has the same outside dimensions as the standard brood frame, but is 2in. wide, giving it a capacity of 5lb. of syrup. When in use it is placed within the hive next to the brood. Once this feeder is in position it is a simple matter to fill it from a watering can or large jug by moving the hive lid to one side and turning back the edge of the hive mat without disturbing the bees. To prevent the bees from being drowned in the syrup floats made from strips of wood or small twigs should be placed in the feeder.

Another popular and effective feeder is a 5lb. or 10lb. honey tin with a friction or press-on type of lid. The lid should be punctured with about 20 holes made by a 1in. nail. When the tin is filled with warm syrup and the lid firmly pressed on it is quickly inverted and placed above the cluster of bees. To enclose the tin of syrup and make the hive snug an empty super is placed above the brood nest. The heat from the cluster below should be prevented from escaping into this empty super, so hive mats are placed around the tin and over the tops of the frames. If the colony is reasonably strong the contents from a 10lb. tin will be transferred to the combs below in a day.

There are other methods of feeding syrup, but whatever system is used the main essentials are always to



**METHODS OF FEEDING**

Left: By division board.

Right: By honey tin with perforated lid.

place the feed within the hive as late in the day as possible so as to avoid disturbing the bees. To prevent robbing contract the hive entrances with blocks or by inserting green grass loosely.

While checking up on stores the condition of the brood chamber should also be observed. The presence of brood or eggs is evidence that the colony is "queen-right," but when neither brood nor eggs are seen, the hive should be marked for a further examination a week or two later. If there is no improvement at the second inspection and the queen cannot be located, the hive should be united with another hive known to have a queen.

### *Uniting Colonies*

Uniting two colonies is quite a simple procedure. First remove the hive lid and mat from the "queen-right" colony, then place over the frames two sheets of newspaper. Next gently lift the "queenless" hive from its stand, and place it over the paper-covered hive. Bees in the top hive are now confined until they have eaten a way through the paper. This may take a day or two to complete, and during this time the colony odour from each hive will amalgamate and the bees will then unite without fighting.

The initial hive work is completed by scraping all debris from floorboards, and by replacing damaged lids or wet hive mats with fresh ones.

A general clean-up should be given to the apiary by cutting grass from the hive entrances and by removing supers of empty combs from stands where colonies have died out. All supers should be stored in a shed to preserve them and to prevent the depredations of wax moths and field mice.

### *Hive Equipment*

Now that the busy season is approaching, beekeepers should be completing their hive equipment programmes, but if plans have not been made to date for the assembly of equipment to accommodate an increase in the number of hives, no further time should be lost, as the assembly takes a good deal of time, which cannot be spared later when the beekeeper will be fully occupied in the apiary itself.

Standard equipment is an essential adjunct to economical and efficient honey production, so every effort must be made to maintain a standard, otherwise apiary operations will be slowed down and attended with trouble in many and various ways.

Before nailing up supers, the ends should be dipped in red lead paint or hot oil. The assembled supers are given two coats of good paint to preserve them, and provision should be made to stack them in a shed when not in use, otherwise their deterioration is fairly rapid.

As frames are subjected to a great deal of handling, they must be well nailed and the frame wire should be securely embedded into the foundation comb by using an electric or spur wheel embedder. Beginners are advised not to attempt to economise by fitting part sheets of foundation comb into the frames. To do so is most uneconomical, as the bees will build a large proportion of drone comb that will later produce many useless drones at the expense of the more profitable worker bees. In addition to this loss of worker bees, the colony loses much time in having to build the extra comb to complete the frame. By fitting full sheets, both time and money are saved. Good combs are essential and in many instances mean the difference between success and failure.

—*E. SMELLIE, Apiary Instructor, Christchurch.*

## Liquid Measure

60 minims .. .. = 1 fluid dram
8 fluid drams .. .. = 1 fluid ounce
20 fluid ounces .. .. = 1 pint
2 pints .. .. .. = 1 quart
4 quarts .. .. .. = 1 gallon
1 minim .. .. = 1 drop
1 dram .. .. .. = 1 teaspoonful
2 drams .. .. .. = 1 dessertsp'nful
4 drams .. .. .. = 1 tablesp'nful
4 gills = 1 pint = 34.66 cub. in.
2 pints = 1 quart = 69.318 cub. in.
4 quarts = 1 gallon = 277.274 cub. in.

1 pint of water weighs 20 ounces.
1 gallon of water weighs 10lb.

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STRENGTH SECURITY

# POULTRY KEEPING

## Management of Chicks During Brooder Stage

THE rearing of day-old chicks as a commercial undertaking cannot be learnt from books. It is acquired by long experience and by the ability of the person concerned correctly to interpret the laws of nature and to apply them in a practical sense to the rearing of stock in an artificial environment and in large numbers. To be successful in the raising of stock one must be familiar with the subject from the theoretical as well as the practical point of view, as it is impossible to put principles into practice unless they are thoroughly understood. The principles that are adopted in the rearing of chicks have in the main been derived directly from the methods of old-established and successful breeders, and are therefore fundamental.

### *Artificial Rearing Better*

One of the greatest essentials to success in poultry-keeping is the ability of the poultry-keeper to rear good pullets. No amount of careful attention and good management at adult stage will offset the handicaps of faulty rearing methods, with the resultant wormy and disease-infested pullets. The possibilities in artificial rearing are many, and if the type of brooder used is good, the method good, and the chicks' requirements as to food and temperature are understood, better results can be secured than with the use of broody hens. The great advantage of artificial rearing is the large number of chicks that can be handled in a small area, and were it not for this branch of poultry-keeping, the large commercial industry of today would have been impracticable. It would be impossible each year to rear with hens the many thousands of chicks required to supply future layers.

There are many types of brooding systems and many types of brooder houses, each possessing advantages and disadvantages and all adapted to certain conditions.

### *Simulate Natural Conditions*

**Regardless of the type of brooder selected and the method of supplying heat, the requirements of the young chicks under natural conditions must be clearly understood and every endeavour made to conform as closely as possible to natural conditions. The aim should be so to manage the chicks that at adult stage they will be possessed of sufficient reserves of stamina to withstand the heavy productive demands made upon them.**

The best growth and most vigorous chicks can be obtained only by close attention to detail, and during the brooding period the factor of environment is of paramount consideration. Roomy and well-ventilated quarters are a necessity to young growing chicks, and every endeavour must be made to construct the brooder house to ensure the maximum amount of fresh air and sunshine and, where practicable, clean grass runs should be available after the young chicks are at least one week old.

Before the chicks are placed in the brooders every care must be taken to ensure that all equipment is thoroughly clean and in a sanitary condition. The task of thoroughly cleaning all equipment and utensils is not always regarded as seriously as it should be. The brooding equipment is often left from the end of one season till the beginning of the next without being properly cleaned and disinfected. It should be made a rule, therefore, that all equipment as well as brooders be scrupulously cleansed as soon as possible after the end of the season.

When removing the chicks from the incubator to the brooder it is necessary to go through them very carefully, killing off all those having physical defects sufficiently serious to interfere with the normal functions of the body. Slightly twisted toes do not matter greatly, but the cripples, chicks with small eyes or imperfectly-healed navels, and obvious weaklings should be got rid of at this stage. It never pays to give them a chance in the hope that something may be made of them. If anything is made, rest assured that it will be a loss.

### *Watch Temperatures*

Extremes of temperature must be avoided for the first two weeks under the brooder. High temperature continued for many days will lower the vitality of the chicks and may ultimately be responsible for a heavy death-rate. It is essential that the young chicks have plenty of warmth, but there must be an adequate supply of life-giving oxygen as well. They must have room to spread out and seek cooler conditions. If they feel cold, they will move nearer the source of heat. The chicks are the best guide when judging the warmth of the brooder; they will huddle to

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the centre if too cold and spread over the brooder floor in twos and threes if the heat is correct. The brooder house, too, must be kept as cool as possible, as high temperatures in the house tend to lower the vitality of the chicks and render them more liable to infection from other sources.

### *Feed Most Important*

**The feeding of artificially-brooded chicks is one of the most important factors in poultry-keeping, and successful nutrition should begin at a day old and extend throughout the growing period. The first four weeks are the most trying, since this period covers the delicate stage of the chick's growth. It is the time when the death-rate is greatest and when mistaken methods of management will be reflected in poor broods.**

Just previous to hatching the unabsorbed yolk is drawn into the bird's body and supplies the growing chick with sustenance for approximately three days. For this reason the young chicks need not be fed for a period after hatching, the best practice being to supply fresh milk or water and fine gravel grit when placing the chicks in the brooder. A good plan is to give the chicks their first meal the morning after they are placed in the brooder. As the natural instinct of the chicks is to pick up bright things, food which is easily seen is desirable. Rolled oats make an excellent first feed; they are very nutritious and are relished by the chicks, but their use is not recommended after the first three days. Dry cracked grains can also be fed, but as they are less easily seen, they should be fed on shallow wooden trays or on sheets of clean newspaper.

Grit to enable the digestive organs to function correctly and shell to supply the lime essential in the formation of bone must not be omitted. Sharp granite grit and oyster shell should be placed within easy reach of the chicks at all times.

Abundant supplies of fresh cool drinking water are essential, since chicks gain weight rapidly, much of this gain being water. Stale or stagnant water carries the germs of disease and is liable to produce digestive disorders in the flock. Keep fresh water before the chicks constantly in receptacles which can be cleaned out at least once daily.

Where milk of any kind is available it is well to give chicks all they wish to drink. The value of milk is not appreciated in the feeding of chicks as it should be, and where abundant supplies are available milk should be made the sole drink. Particularly should this be the case during the first two weeks. The milk may be fed either sweet or sour or in powdered form such as butter-milk powder.

For the first eight to ten days dry cracked grains are the best food for chicks. In the first two weeks, the most critical time in the young chicks' life, every attention must be paid to their health and vigour. From the tenth day the grain diet may be supplemented by the addition of mash. At this stage the digestive system has developed sufficiently for the future system of feeding to be made a matter of convenience. Where chicks are to be fed in large numbers in confined areas the dry mash and grain system usually gives best results. It is difficult to feed a wet mash in a sanitary condition and its use in the brooder stage is not recommended. However, while the feeding of dry mash and grains is the practice usually adopted, to ensure the proper health of the chicks the intake of mash and grain should be as near equal as possible. It is generally found that the young chicks consume greater proportions of mash and practically avoid grain, and the diet actually becomes out of balance. Also, this over-abundance of relatively rich food is obtained without the chicks ever having to search or scratch for it. This is where the method of feeding usually fails, because it allows of over-feeding. Where several troughs of mash are placed in a brooder house and are constantly kept filled at no time are the chicks allowed to gain an appetite. This, in turn, is reflected on the digestive organs, because their tone is in part maintained by exercise, controlled by the appetite. Nature provides that to obtain food it has to be worked for, and this elementary principle must be adopted in the feeding of young chicks if the best results are to be achieved. There must be a break between the meals during which the digestive organs are allowed to rest. The chicks' appetites are thus controlled and at least three feeds of grain should be thrown into the litter each day and the chicks encouraged to scratch in search of it, which induces exercise and promotes muscular activity.

Green food should be fed after the chicks are one week old. A regular daily supply is one of the essentials to successful rearing. It should be chaffed until the chicks are old enough to pick it to pieces for themselves; indeed it is most economical to feed it in the chaffed form to stock of all ages.

Frequent cleaning of the brooder house is essential for best results and should be made a matter of routine procedure. The practical success that follows the adoption of rigid sanitation measures is the best argument for the practice of renewing the litter after the first ten days and every five or six days thereafter. The frequent renewal of the litter also gives the young chicks fresh interests and induces exercise.

—*C. R. JEFFRIES, Poultry Instructor, Auckland.*

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# YOUNG FARMERS' CLUBS

## Annual General Meeting of Y.F.C. Federation

THE eleventh annual general meeting of the New Zealand Federation of Young Farmers' Clubs (Inc.), held in the Toorak Hall, Hamilton, on Monday and Tuesday, June 25 and 26, was most successful and was attended by about 70 delegates from North Auckland, Auckland, Waikato, King Country, Bay of Plenty, Northern and Southern Hawke's Bay, Wairarapa, Manawatu, Marlborough, North and South Canterbury, Otago, and Southland.

A short meeting of the Dominion Executive Committee took place prior to the main meeting, which was officially opened by Mr. Caro, the Mayor of Hamilton, who expressed his sympathies towards the farming community and the Young Farmers' Clubs movement in particular. A vote of thanks to the Mayor was moved by Mr. S. G. Avery (Vice-president of the federation) and seconded by Mr. K. G. Hargest (Otago-Southland Council). The retiring President, Mr. T. E. Streeter, of Motukarara, Canterbury, paid a tribute to the memory of the late Squadron Leader E. W. Barnett (a former Dominion Y.F.C. President), coupled with the names of all members who had died on active service; the meeting stood in silence for a few moments in their honour.

In his annual report (which was published in last month's issue) Mr. Streeter reviewed the work of the past year, and gave ample evidence that the Y.F.C. movement was definitely "on the up-grade" so far as number of clubs and memberships were concerned. The clubs had increased from 70 to 104 during the year, and the memberships generally were greater and showed a bigger proportion of younger members. Both club and district activities were increasing, and, despite transport and other difficulties, it was certain that the coming year would be one of progress. He appealed to all associated with the movement to pull together and do their utmost to re-establish the organisation on its prewar basis. The number of clubs was now double the figure to which it had dropped during the darkest days of the war, but was still only half way to complete recovery. By concerted effort only could the movement be rebuilt and extended; it had shown its value and demonstrated its capabilities during the war. In the peace to come it had a definite part to play in reconstruction and rehabilitation.

### Officers Elected

The election of officers resulted as follows:—Grand Patron, Mr. L. J. Wild, Feilding (re-elected); Dominion President, Mr. F. S. Atchison, Clevedon, Auckland; Vice-president, Mr. Jas. Barclay, Waimate, South Canterbury; representative on National Council of Primary Production, Mr. D. S. Ross, Te Puke (a former President); representative on Dominion Executive of N.Z. Farmers' Union, Mr. Jas. Barclay; hon. treasurer, Mr. C. H. Schwass; hon. auditor, Mr. O. G. Thomas.

The Dominion Organising Secretary, Mr. S. Freeman, gave a comprehensive report dealing with the position of the movement in every district throughout the Dominion, pointing out the progress or otherwise of the organisation, and its prospects. He stressed the importance of the District Committees, and the need for enrolling younger members in the clubs.

The report on cultural and aesthetic values, prepared by the sub-committee set up by the Otago-Southland Council at the request of the Dominion Executive Committee, had received wide publicity through the Press, and the sub-committee was congratulated on its useful work.

Arrangements were made for adequate distribution of Y.F.C. literature and propaganda.

The publication of a Y.F.C. year book was given consideration.

The secretary said that the Government Studios at Miramar would be willing to take film shots from time to time of outstanding Y.F.C. activities for featuring in the Government Publicity newsreels, and it was agreed that every advantage should be taken of this opportunity.

### Memorial Schemes

Recommendations submitted by the Y.F.C. memorial sub-committee were mainly along the lines of scholarships to Y.F.C. members who had served overseas and their relatives. It was decided to ask all units of the federation for further suggestions as to the form that the memorial should take; in the meantime authority was given for the clubs and other units to commence collecting funds. Quotas had already been arranged in the Auckland Council area, and the sum of £259 had been collected in the Bay of Plenty. A total objective of £10,000 was suggested by the sub-committee, to be collected over a period of five years.

Land settlement, rehabilitation, and a scheme for the sponsoring of a "sister" organisation for rural young women, along the lines of the Y.F.C., were discussed. The last-named matter had already been referred to representatives of women's organisations at a meeting held in Wellington, and would come up for discussion at the annual conferences of the W.D.F.U. and Women's Institutes.

A number of remits were considered, among them being a recommendation that clubs should plant not less than 12 trees each, to mark the outstanding achievements of the British and Allied Forces in Europe.

A motion encouraging the development of sports and athletic events as a part of club activities was also carried.

An exhibition of film-strips was given by Mr. A. G. Sparrow, and arrangements made for such film-strips to be available to clubs for lecture purposes, the purchase of the special film-strip projectors to be gone into by the Dominion Executive Committee.

On the evening of the first day the visiting delegates attended an excellent concert as the guests of the Auckland Y.F.C. Council, and on the day following the conclusion of the meeting a party of the visitors was shown over the Ruakura Animal Research Station.

The very evident keenness and enthusiasm of all who attended the meeting augur well for the future of the organisation.

## BOYS' AND GIRLS' AGRICULTURAL CLUBS.

A HISTORY of the origin and establishment of the Boys' and Girls' Agricultural Club movement in Taranaki and of the movement to form a Nature Lovers' or Co-operative Citizenship League has been embodied in an attractive booklet by Mr. G. H. Buckeridge. It is an interesting survey of the expansion of a movement whose value to the children and to the country in creating interest in agriculture and stock-raising cannot be overemphasised. Copies of the booklet are obtainable from Mr. Buckeridge at 10 Fairview Crescent, Wellington, W.1.

Group taken at eleventh annual general meeting of Y.F.C. Federation at Hamilton, June 25 and 26, 1945. Starting sixth from left, second row: Messrs. J. H. Bremner (N.Z. Farmers' Union), J. L. Sunderland (chairman, Wellington Council), D. S. Ross (Past President), S. G. Avery (Past Vice-president), T. E. Streeter (Immediate Past President), F. S. Atchison (newly elected Dominion President), S. Freeman (Dominion Organising Secretary), W. A. Young (chairman, Otago-Southland Council).

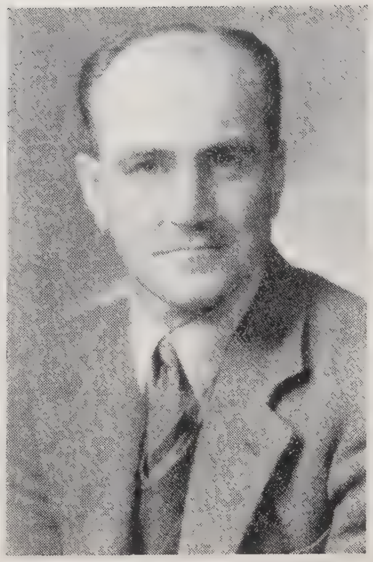
# Dominion President

## MR. F. S. ATCHISON

MR. F. S. Atchison, the newly-elected Y.F.C. Dominion President, has been an enthusiastic Y.F.C. supporter over a lengthy period. He was born at Clevedon, South Auckland district, in 1915, and is the younger son of a well-known farming family. He was educated at King's College, Auckland, and is now farming his late father's property, "Burn Brae," situated at Clevedon.

He was the first chairman of the Clevedon Young Farmers' Clubs, formed in 1939, and held office as Chairman of the Auckland Y.F.C. District Committee, later being elected chairman of the Auckland Y.F.C. Council. He has been a member of the Dominion Executive Committee for a number of years. He is an executive member of the Franklin A. and P. Association, and of the Franklin Veterinary Club, and an active member of the New Zealand Farmers' Union. In addition he has served on a number of local committees in various connections.

Fred Atchison, as he is popularly known, is a keen sportsman. He is a well-known rider in the Auckland show ring and hunting circles, having hunted and jumped horses in open company since childhood. He is a keen polo player, being a member of the Clevedon Polo Club. At football he represented Manukau Rugby Union as half-back and five-eighths, and at cricket he represented the Manukau Cricket Association as opening batsman and spin bowler. Besides taking an active part in sport he has interested himself in the administrative and executive side and has served on the committees of many sporting bodies over a number of years.



Mr. F. S. Atchison.

As a farmer, principally dairying, Mr. Atchison has proved himself to be both efficient and up-to-date. As a Y.F.C. member his keenness and enthusiasm leave little to be desired, and at meetings he has shown himself to be a strong and capable chairman.

# Reports on Club Activities

### WESTERN SOUTHLAND

**Drummond.**—Discussion on proposed basketball tournament to be held at Invercargill. Lecture by Mr. W. Harris, of Invercargill, on "How to Conduct a Meeting"; Mr. Harris, who has had much to do with Y.F.C. affairs, explained fully the duties of the various club officers, etc. There was an attendance of 12 members out of a total of 16.

**Tokanui.**—General business. Discussion on remit submitted to the District Committee by the Wyndham Y.F.C. Also discussions on the proposed inter-club basketball and football tournaments; it was decided to form a Tokanui Y.F.C. football club. Twenty members present out of 21.

**Wyndham.**—Talk by Mr. T. L. McDonald, M.P., on "Jewish Farm Settlements in Palestine." Twenty members present out of a total of 21.

### EASTERN SOUTHLAND

**Five Rivers.**—General business; discussion on banking of funds, etc. Last year's balance sheet reviewed. Arrangements for a debate at next meeting. Talks by members as follows: T. Muir ("The Grass Grub"), and D. Muir ("Stud and Stock Breeding"). Ten members present out of 18. At the previous meeting P. Drummond gave a talk on "Internal Combustion Engines."

### SOUTH OTAGO

**Clinton.**—Request to be made for the provision of a sheep section for Y.F.C. members only at the local show. Interesting address and demonstration on "Stud Rams" by the Mosley Bros., using one of Mr. H. Bell's rams to illustrate the points. Eleven members present out of 14. Officers elected at the annual meeting: Advisory president, Mr. J. Murney; chairman, E. Roseveare; secretary and treasurer, W. Roy.

**Clutha Valley.**—Decided to plant trees in memory of members killed on active service. Arrangements for club ball. Workers' Educational Assn. papers introduced by Mr. A. Pannett; after discussion these were rejected because they were too advanced for the younger members. Full muster of 19 members present.

**Milton.**—General business. Address by Mr. S. J. Ottrey on "Fat Lamb Marking." Ten members present out of 31.

**Warepa.**—Arrangements for club ball; debate to be held with the Clinton Y.F.C. Interesting talk by C. Kerr, a member of the club, on his experiences in the Pacific, where he served in the Air Force; he illustrated his talk with photos, curios, etc. There were 25 members present out of 33.

### DUNEDIN

**Mosgiel D.H.S.**—Visit to the Dominion Fertiliser Co.'s Works at Ravensbourne. The club members were conducted round the works by members of the firm's staff, who explained and demonstrated the various stages of manufacture of the fertilisers, sulphuric acid, etc.; the visitors were also shown over the laboratory, where the test for soil acidity was demonstrated. Forty-six members attended out of 50. A visit was also paid at a previous date to Mr. Heenan's dairy farm at Mungatua, where Mr. Buxton (dairy inspector) demonstrated on the construction of a modern cow byre and milk house, and cleanliness of milking plant, etc. Mr. Buxton concluded his talk with a brief resume of the main diseases that are liable to attack a herd. A talk was also given by Mr. Heenan on his own farming experiences. Mr. Young's farm at Allanton was visited on another occasion, the main interest being the header harvester. A debate has been arranged between teams from the Mosgiel club and the newly-formed club at the R.N.Z.A.F. Station, Taieri, the subject being "That the co-operative ownership of the heavier and more expensive types of farm implements by three or four neighbouring farmers (who can work co-operatively) would result in the better economic development of a great deal of the agricultural land in New Zealand."

### NORTH OTAGO

**Enfield.**—Letter to be sent to Messrs. W. and D. Malcolm thanking them for their generous competition prize donations. Arrangements for club dance. One new member enrolled. Talks by returned members, B. Helliwell, W. Anderson, and R. Anderson, on their experiences in the Pacific. Sixteen members present out of 20. At previous meetings, talks were given by Mr. J. B. Chapman ("Tobacco-growing and its encouragement in North Otago"), and Mr. T. A. Sellwood, Department of Agriculture ("The Reviving of the Y.F.C. Movement throughout North Otago").

**Five Forks.**—This club has been recently revived after being over three years in recess. Officers elected: Advisory president, Mr. M. W. Austin; chairman, E. F. Ruddenklau; secretary and treasurer, J. F. Wilson. Twelve members present. We wish this club every success, and hope that its example will be speedily followed by the other clubs in the district that are still inactive.

### SOUTH CANTERBURY

**Geraldine.**—Plans made for a club reunion. Arrangements for a dance. Two debates held: (1) "That the Fertiliser Rationing is a Blessing in Disguise"; speakers, T. Greenall, M. Goodwin, M. Crotty (affirmative); J. Sheed, W. Nelson, B. Padget (negative). The negative team gained the award by 112 points to 102. (2) "Should Small Farms be encouraged in New Zealand?"; speakers, E. Worner, C. Kelman, M. Hughes (affirmative); P. Temple, K. Goodwine, I. Sheed (negative). The negative won this debate by 122 points to 120. There was an attendance of 24 members out of 35. At the previous meeting a donation of £4 4s. was received from Mr. and Mrs. Hibbs for a debating cup in memory of their son, Kingsley Hibbs.

**Pleasant Point.**—Arrangements for selecting a club debating team. The next meeting to be devoted to debates and impromptu speeches. Report on annual ball, net profits of which amounted to £16. Address by Ft. Lt. O. R. Chapman, D.F.C., on his experiences overseas. Ft. Lt. Chapman, an ex-member of the club, intimated that he was very pleased to see that the club had been able to keep going and had such a satisfactory membership. There were 36 members present out of 44.

**Waihaorunga.**—Lecture by Mr. G. Barclay on "Bee Keeping." Eighteen present out of 35. At the previous meeting a programme of lectures for the year was discussed. Officers elected at the annual meeting: Advisory members, Messrs. G. Barclay and A. Bakie: chairman, I. Hurst; vice-chairman, W. Burnie; secretary, R. E. Rickman; treasurer, A. Armstrong.

### MID-CANTERBURY

**Hinds.**—General business. Interesting and humorous lecture given by Mr. L. A. Charles, president of the Ashburton Rotary Club. Ten members present out of 19.

**Methven.**—W. Stevens appointed delegate to the Farmers' Union. It was decided that the club should join the Ashburton Debating Union. The speeches for the Dunkley Cup were held, the subject being "Should N.Z. Manpower be further overtaxed when Primary Production is Urgently Required?"; results, G. Limbrick, 1; W. Sterns, 2; R. Mangin, 3. Twenty-six members present out of 80.

**Wakanui.**—Club newly formed, with an initial membership of 14. Officers elected: Advisory president, Mr. A. Amos; chairman, L. Hyland; secretary, S. Watson; treasurer, R. Amos. The prospects of an increase in membership appear very bright, and we wish this club the best of success.

### CHRISTCHURCH

**Ellesmere.**—Two new members enrolled. Invitation from Darfield Club to a football match. Mr. L. W. McCaskill to be asked to lecture on "Rural Education." Challenge issued to Farmers' Union to a debate. A club debate was held, the teams being as follows: D. Hurford, G. W. Angus G. Prosser, I. Anderson, A. S. Ford (affirmative); H. G. Stephens, A. Anderson, L. Tod, J. Withell, N.

D. Lambie (negative). Mr. Clarke kindly acted as judge, and gave the decision to the affirmative by the close margin of 345 points to 342. Twenty-nine present out of 55.

## NORTH CANTERBURY

**Amberley.**—Members stood in silence to the memory of two fellow-members, Colin Ashworth and Lawrence Croft, killed in action. Donations gratefully received from vice-presidents Messrs. C. Ashworth and A. Ashworth. Instructive address by Mr. E. G. Smith, Department of Agriculture, on "The Sowing-down of Pastures"; the speaker also gave his experiences with different grasses, and dealt with H1 short-rotation ryegrass. There were nine members present out of 19.

**Cheviot.**—Address by Mr. J. Rankin, of Messrs. Wright Stephenson's, on "Seed Cleaning." There were 23 present out of 26.

**Hawarden-Waikari.**—Club recently resumed activities after being in recess for about three years. Officers elected: Advisory president, Mr. J. W. Earl; chairman, K. Costello; secretary, J. M. McMillan; treasurer, D. A. Black. Twenty-two members present. At subsequent meetings Messrs. E. G. Smith and Withell, of the Department of Agriculture, delivered addresses. Preparations are under way for a club ploughing competition. We wish this club every success.

## MARLBOROUGH

**Flaxbourne.**—Address by Mr. Brian Trolove, a well-known local stud sheep breeder, on "Show Sheep Judging and the Selection of Rams." The speaker stressed the importance of a good body and pleasing look of a sheep, and warned his audience against over-emphasis on wool. He also touched on the world wool situation. At the previous meeting, which was better attended, debating teams were selected. An address was given by Mr. J. Ropert, B.V.Sc., veterinarian, touching on contagious abortion and its prevention, and artificial insemination and its possibilities. He also spoke at length on refresher courses for young farmers and farmers generally. There was an attendance of 15 out of 28.

## NELSON

**Maruia.**—Successful sports day held; axemen's chops, greasy pole, horse events, tilting in the ring, rescuing the dummy, etc. There was also a football match, Maruia Y.F.C. v. Murchison Y.F.C., which was won by Murchison. A dance at night concluded a very successful day, and it is understood that the local Patriotic Funds will benefit substantially from the proceeds. There was a total attendance of 88, which included 25 visiting members and 45 local farmers and friends.

**Murchison.**—Annual meeting. Officers elected: Advisory president, Mr. Chas. Lynch; chairman, C. Peacock; secretary and treasurer, W. Rouse. Eighteen members present.

## HOROWHENUA

**Levin.**—Arrangements for "post mortem" field day. Dance to be held. Address by Mr. P. Prouse on "Farm Trees and Commercial Forestry." Fifteen members present out of 27.

## MANAWATU

**Apiti.**—Two new members, K. Stanley and F. Viles, enrolled. Talk by Mr. Geo. Watkins on "Butter-making and Testing of Cream." Fifteen members present out of 35.

**Bunnythorpe.**—Reference made to the death of Squadron Leader E. W. Barnett; members stood in silence as a mark of respect. Lecture by Mr. R. P. Gilder, Government veterinarian, on "Seasonal Diseases in Stock." Fourteen members present out of a total of 19; in addition 17 local farmers were present by invitation.

**Feilding.**—The club is staging an agricultural show at Feilding in November next, on behalf of the Manawatu District Committee; a special meeting was held, at which delegates from surrounding clubs were present, and a tentative schedule was drawn up. Classes to be as follows: Horses—working horses, hacks, ponies; cattle—Milking Shorthorns, Friesians, Ayrshires, Jerseys, cross-bred dairy cattle; sheep—Romney Marsh and Southdown (in both open and natural condition classes), flock classes for unregistered Romneys, fat lambs and pet lambs; pigs—Berkshires, Tamworths, Large Black, Large White, and porker and baconer classes. Officers for the show were elected: Patron, Mr. W. H. Henson; chairman, Mr. L. E. Hansen; organiser, Mr. Earl Beazer; secretary, Mr. Guy; assistant secretary, Mr. D. Griffin; chief stewards, Messrs. H. D. Brewster (horses), N. Wilson (cattle), R. O. Gloyn (sheep), L. E. Hansen (pigs). It is anticipated that the show to be held this coming November will be one of the highlights of Y.F.C. activities in the Manawatu. The Feilding Club is to be congratulated on its venture. The following talks, etc., have been given at recent meetings of the club: Major D. N. Ferguson, B.Ag., gave an interesting talk on Fiji, illustrated by exhibits from the Islands, etc.; Mr. A. C. Buist, advisory president, gave an address on "How to run a Successful Young Farmers' Club"; Mr. Buist stressed the point that enthusiasm was absolutely necessary, and gave some useful hints on the work required to be done by the various club officials. Fourteen members present.

**Kairanga.**—Arrangements for three club members to give a short talk each at every meeting, on subjects of their own choice. Address by Mr. A. V. Lithgow, Department of Agriculture, on the Y.F.C. radio session from 2ZA, and on the revival of clubs. Attendance of 30 out of 36 members. At the previous meeting a football team was selected. A visit was paid by club members to the Longburn Freezing Works, where they were shown the processes and complete running of the works; 17 were present, including three farmer friends.

**Oroua Downs.**—Visit to Longburn Freezing Works arranged. Report by advisory president on the recent meeting of the Manawatu District Committee. Report and balance of Y.F.C. ball read and discussed. Two new members enrolled. Interesting lantern lecture by Mr. E. Bruce Levy, Director of Grasslands Division, on "Grasslands." Twenty-eight members present out of 29; in addition a number of local farmers attended by invitation.

**Pohangina Valley.**—A. McDonald elected vice-chairman in place of R. J. Moar, who has joined the Air Force. Arrangements for field day at Massey College. Address by Mr. A. A. Johnson, Massey College, on "Britain's Agriculture during Wartime"; the speaker dealt with Britain's achievements, and made comparisons with New Zealand. Mr. Johnson is one of the party of N.Z. experts recently returned from the United Kingdom. There was an attendance of 22 out of 31. At the previous meeting Mr. J. Dawson, a local farmer, gave an instructive talk on "Leather," dealing with the processing and curing of hides.

**Rongotea.**—Field day at Massey College; the Principal, Professor Peren, outlined the part the college was playing in the rehabilitation of ex-servicemen; Mr. Webster gave an interesting talk on the prevention and treatment of animal diseases; Mr. Holland described the farming practices and fodder conservation methods. The last hour was spent with Mr. Gorman at the Grasslands Division. The field day was organised by Mr. G. A. Barrett, of Massey College, who was also responsible for the luncheon arrangements. Twenty-three members were present out of 41.

**Whakarongo.**—Debate to be held against Pohangina Valley Y.F.C.; subject to be "That Modern Mechanisation is Detrimental to Farming." Address by Dr. J. S. Yeates, Massey College, on "Pasture Weeds," illustrated by colour slides. Nineteen present out of 26. At the previous meeting a talk was given by Mr. I. E. Vautier on "Experiences with the N.Z. Division." The speakers for the talks were D. Lynch ("The Feeding of Iodine to Dairy Cattle"), and J. McLeavey ("Liquid Manure"). Twenty-two present.

## WANGANUI

**Bulls.**—Chairman thanked members for their efforts at the recent successful annual dance; interim report showed profit of £18. Arrangements for field day on the making of concrete posts, followed by demonstrations on pampas grass, pigs, and the setting of a plough. Discussion regarding the staging of a dog trial; held over till a more opportune time. Arrangements made for the radio session, the subject matter to be based on the pilot release demonstration staged at Ohakea. Teams selected for the district debating contest. Football match against Ohakea Y.F.C. cancelled on account of latter being unable to raise a team. P. Anderson appointed delegate to the Farmers' Federation. Occasional meetings to be held at Sanson, in order to stimulate interest in that locality. Discussion regarding 5-acre plot for lupin trial. Chairman extended a welcome to S. H. Last Harris, who has just returned after serving overseas for a considerable time; Mr. Harris has been

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both chairman and secretary of the club. Address by Mr. Geo. McDonald, veterinarian, Rata, on "Diseases we can Prevent"; the speaker dealt very fully with his subject, and at the conclusion answered a number of questions. Sixteen members present.

**Mangaweka.**—Discussion regarding the club's memorial to members killed overseas; suggested that the club should build a small hall. Discussion adjourned till next meeting. A practice debate was held for the district debating contest. Ten members present out of 17. A further practice debate was held the following week, eight members being present.

**Marton.**—The report of the annual meeting was inadvertently omitted from this section in the June issue. Officers elected: Advisory president, Mr. H. G. Stewart; chairman, M. M. Marshall; vice-chairman, G. E. Gordon; secretary, Malcolm F. Gray; assistant secretary, A. L. Vile; treasurer, A. W. Dickey. There were 20 members present.

## WAIRARAPA

**Carterton.**—Report on the recent meeting of the District Committee and of the Wellington Council, by H. McKenzie. Report on annual dance—proceeds amounting to £8. One new member enrolled. Talk by Mr. D. L. Taverner on "Legal Matters," including gift and death duties, the administering of an estate, etc. Fifteen members present out of 25.

## SOUTHERN HAWKE'S BAY

**Ballance.**—Two teams selected to judge at the forthcoming field day at Woodville. Arrangements for a club debate prior to the district contest. Mr. C. H. Wilton, a local stud breeder, gave a very instructive lecture on the best type of Romney sheep to breed for the overseas fat lamb market. Twelve members present out of 19.

**Dannevirke.**—J. L. Sunderland, who is leaving the district, tendered his resignation as hon. secretary; G. R. Redward was appointed in his place. Mr. Sunderland's resignation was regretfully accepted, and many present paid tribute to the services he had rendered to the club, among them being Messrs. K. J. Holyoake, M.P., K. Tait (vice-chairman), S. K. Carswell, L. Feierabend (advisory members), and F. J. S. Holden (district secretary). Mr. Sunderland was congratulated on his appointment as chairman of the Wellington Y.F.C. Council. Short talks by club members: M. Simmons ("Soil Erosion in America"); J. McNaught ("Pure Milk Production"). Mr. F. J. S. Holden, Department of Agriculture, gave a lecture on "Mole Drainage." Twenty-five members present.

## NORTHERN HAWKE'S BAY

**Meeanee.**—Annual meeting. Officers elected: Advisory president, Mr. J. N. Guthrie; chairman, W. J. Dooney; secretary, J. A. Hale; treasurer, W. J. Puddle. Eight members present out of 15.

**Wairoa.**—With the donation of three books by Mr. B. Teague, of Wairoa, a start made to form a club library. Appreciation expressed to Mrs. Lister and family, of Awamate, for the successful Y.F.C. dance held at their homestead recently; the takings amounted to £7. Appreciation of the efforts of Mr. and Mrs. Humphrey Bayley in connection with the field day. Raffle to be drawn at next meeting. Mr. E. Thompson, of the St. John Ambulance Brigade, gave a very interesting and instructive lecture on "First Aid." Twenty members present.

## WAIKATO

**Hamilton Technical High School.**—This club has been recently formed with an initial membership of 64. Officers were elected as follows: Advisory president, Mr. A. W. Greer; chairman, T. Houghton; secretary, W. Mahood; treasurer, D. Buick. This club appears to have excellent prospects, and should act as a "feeder" to the clubs in the Waikato. We wish the club every success.

**Te Awamutu.**—General business. Address by the Rev. Warren, "To what extent is Socialisation inevitable in New Zealand?" Twenty-four members present out of 38.

## WESTERN BAY OF PLENTY

**Omokoroa.**—Final arrangements for a concert, to be held to raise money for the Y.F.C. Memorial Fund. Talk on "Pampas Grass" by Mr. A. V. Allo, Department of Agriculture. Twelve members present out of 22.

**Paengaroa.**—General business. One new member enrolled. Arrangements for a combined dance and card party to raise funds for the Hall Society. W. Wilson, a new member, gave an interesting talk on "Impressions and Experiences in India." Twenty-three members present out of 65.

**Pukehina.**—General business. Talk by Mr. Carr on "Mastitis"; address by Mr. McIndoe, veterinarian, on "T.B. in Cattle." Nine members present out of 21.

**Tauranga.**—Arrangements for the forthcoming ball. Report on dance held last month. Mr. A. F. Barwell, Supervisor, District Pig Council, gave an interesting lecture on "Pig Husbandry," and demonstrated his points with scale models. He pointed out the advantages of sawdust concrete in the sleeping quarters, and showed a number of drawings explaining the evolution of the modern bacon pig. Eighteen members attended out of 34.

**Welcome Bay.**—Chairman reported on the dance held at Papamoa Hall, and extended special thanks to the members of the Women's Institute and the Bachelor Girls for their assistance; also to Bill Stewart who presented a dressed duck for a competition. J. R. Wright appointed delegate to the Tauranga A. and P. Association. Only one entry received in the ensilage competition. Very interesting film display given by Mr. Briggs, of a prewar trip from New Zealand to Java, via Australia; another film showed the Centennial Exhibition in Wellington, 1940, and also many views of the North Island. There were 14 members present out of 26.

## EASTERN BAY OF PLENTY

**Opotiki District High School.**—This club has recently been formed. Full particulars of officers elected, etc., will be published in next issue; in the meantime we wish this new club the best of success.

## AUCKLAND

**Clevedon.**—Report of the annual general meeting of the federation was given by Mr. F. S. Atchison. The meeting congratulated him on his appointment as Dominion Y.F.C. President. A sub-committee was appointed to arrange for the planting of trees in the main street of Clevedon. Mr. D. Renton, Ness Valley, gave a very interesting account of his travels while in the Merchant Navy. Fifteen members present out of 21.

**East Tamaki.**—Report by L. W. Gubb on the recent Auckland Council meeting. W. Landon elected as deputy chairman. One new member enrolled. A practical demonstration was given by Mr. Bleakley, woodwork instructor, Otahuhu Technical High School, on the "Care and Sharpening of Saws, Chisels, and Planes." Twenty-two present out of 33. A field day was held at the Puketutu Island Stud Farm, 16 members attending. The visitors were shown a fine display of pedigree Ayrshire and Black Poll cattle; interest was also taken in a recently imported Romney ram, and in the pedigree Southdown flock.

**Franklin.**—Delegates reported on the recent meeting of the district committee. Final arrangements for a barn dance, to be held in the Rama Rama Hall. Impromptu speeches on farming topics by club members. Many members showed unsuspected ability, and some valuable information was given in respect to various farm practices. Twenty-two members present out of 30.

**Harrisville.**—General business. Discussion regarding a dance. Impromptu speeches by club members. Ten members present out of 16.

**Pukekawa.**—Club asked to run a sports programme in conjunction with the forthcoming school jubilee; decided to stage a seven-a-side football match and some other athletic events. Arrangements for club football matches. Debate to be held at next meeting. Mr. F. Hook described the piggeries at Messrs. Lange and Tambour's property, Waimauku, for the benefit of those who were unable to attend the field day held there recently. Mr. A. D. Mercer, Department of Agriculture, addressed the meeting on "The Progress of English Agriculture." Fourteen members present out of 20.

**Pukekohe East.**—New club, recently formed. It is hoped to supply details of officers elected, etc., in the next issue. Best of luck to the new club.

## NORTH AUCKLAND

**Kaukapakapa.**—Arrangements for a town field day, this being a seasonal practice of the club. Films to be exhibited by Mr. G. H. Dawick, secretary of the N.Z. Jersey Cattle Breeders' Association, at a future meeting. Two new members enrolled. Discussion on subject matter for a radio talk from 1YA, Auckland. A very interesting and educative address was given by Mr. Brandon Clarke, B.A., on the international auxiliary language "Esperanto." The membership of this club is now 48.

# Auckland District Field Day

**(By L. W. Gubb, chairman, East Tamaki Young Farmers' Club).**

A VERY interesting field day was held at Messrs. Lange and Tambour's model piggery, Waimauku. There was a good attendance from all clubs in the Auckland district. Special thanks are due to Mr. Clark, of the Auckland Pig Council, and Mr. Kelly, of the Auckland Farmers' Freezing Co., for their help in organising the day and also in making transport available.

The general layout on this farm, although used for large numbers of pigs, could be used with advantage on ordinary farms, its simplicity and convenience being outstanding. The feeding and cleaning of the farrowing houses are simplified by having them all in one unit in the centre, with the drainage running on either side of a central race and the grass pens running out on either side. Each farrowing house is compact, with concrete floor in front and wooden sleeping quarters, with the provision of a creep in front for the young pigs. Full use has been made of concrete for flooring, drains, races, and troughs. The high standard of health in the pigs, together with very low fatalities—the number of pigs reared averages 8 per litter for the 50 sows—is attributed to warm, well-ventilated quarters, which are cleaned out daily, and a good balanced diet.

The breed of pigs used is Tamworth boar and Berkshire sows, giving an excellent bacon carcass. The general system used on this farm was for the sows to be brought in shortly before farrowing; they are then bedded down with a small amount of straw for farrowing, after which sawdust is used. The sows are allowed out into the grass runs only in fine weather, but the suckers are out at all times unless the weather is most unsuitable. After weaning the pigs are put out in paddocks on grass and then brought in as large stores to the finishing houses, which are of similar design to the farrowing houses, with wood and concrete floors. They are in one long line, instead of one in front of the other as in the farrowing pens, and sectioned off for each to carry about 10 pigs.

Mr. Lange advised a greater study of the food values in supplementary foods and recommended the mixing of the farmers' own meals.

Mr. F. S. Atchison thanked Messrs. Lange and Tambour for the most interesting and enjoyable day.

# The Good Neighbour

***Holiday at Home*** This is the time of the year when most of us begin to feel that we would like a holiday. The buds breaking on the trees, the flower petals of the narcissi gleaming ivory-pale as they emerge from their thin papery sheaths; the delicate, cool scent of primroses, and the fitful breezes and sunshine, all serve to emphasise our need of a change from the machine-like routine of everyday life. Those whose circumstances permit them to down tools and go away for a vacation would be well advised to make the most of their chance. But these fortunates are greatly outnumbered by the majority of women whose duties prevent them from seeking relaxation in travel.

Actually, it's rather fun to play a game of make-believe occasionally, and plan an imaginary trip to the glaciers, or the thermal regions, or the sounds, or wherever your fancy takes you. Working out the details of your holiday itinerary is an excellent antidote to the monotony which so often accompanies the continued repetition of the necessary but mundane tasks of housekeeping. Indeed, a friend of mine, who was an inveterate traveller before the war, has carried the idea even further, by adorning the walls of her kitchen with a set of maps of New Zealand. Thus, while her hands are occupied with the humdrum chore of preparing vegetables or dishwashing, in thought she may be hundreds of miles away driving along a scenic highway or cruising among the picturesque islands off the coast. Each map features enlargements of those sections depicting the principal towns and their environs, and she sometimes amuses herself by reciting the lesser-known place names in some of the districts—Tapanui, Pomahaka, Waikoikoi, Pukerau, Waipahi, Waruna, for instance. The lovely Maori names of these southern settlements roll off the tongue like a veritable litany. A second series of maps, showing the country's air routes, seems to hold a particular fascination for her visitors, and she is quite accustomed to guests lingering on in the kitchen long after the last item of crockery has been wiped and put away, in order to acquaint themselves with such interesting facts as: "The Manawatu River, 100 miles long, is the second largest in the North Island;" "Dunedin grew from 7,000 to 50,000 in 1861-1862 after the discovery of gold in Central Otago;" "The Tainui Canoe (A.D.1350) ended its voyage at Kawhia and the descendants dominated the Waikato." Even the adjacent laundry has its geographical "pin-ups," and the map of the globe hung above the tubs is responsible for many a thrilling mental excursion to foreign lands while the rubbing and rinsing are in progress. "I really quite look forward to washing days now," she confided. Would that more housewives could truthfully say that!

Reading is another method whereby we may enjoy the delights of travel—vicariously, of course. There are all the countries of the world from which to choose. This last evening or two I have been dipping into a volume by a woman who explored the countless small islands in the Dutch East Indies just before Japan laid her greedy hands upon them. (Yes, I admit I should have been writing letters and my work basket was piled high with mending, but after exploring the "isles of spice" and sojourning in Soerabaya with my new-found English friend, I returned to my darning with fresh zest, it being an occupation which left me free to meditate on the wonders of those beautiful islands. Later, the flow of ideas and the vigour with which I attacked my correspondence more than compensated for the delay caused by my reading.)

And last, but not least, why not give yourself a well-earned respite from domesticity by taking a day off now and again, and spending it as a guest in your own home? Don't let cleaning worries weigh upon your mind—it is very little more effort to remove two days' dust than to get rid of one—and if your family is unable to offer assistance in the matter of meals, choose foods requiring the minimum of preparation and eliminate the bugbear of dishwashing by bringing into service those paper plates and beakers from the picnic basket. Use your free time to read or rest or replant a flower bed; indulge in some music, or try that new quilting pattern, or experiment with your beauty aids—the main thing is to follow your own inclination in the matter of diversion. You'll find a holiday at home will pay valuable dividends in renewed well-being of mind and body.—MARY.

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# *Are You Travelling This Spring?*

*IF you are getting ready to travel your thoughts will doubtless be concerned with the important question of clothes. The ideal wear for journeys at this time of the year is a suit. Whether severely tailored (as in our illustration) or dressmaker style with ornamental pockets and fancy stitchery, a warm suit is "tops" for travelling. Make it the basis of your wardrobe—divested of its coat and worn with a gay twin set it is ideal for wear in the house, or plus a smart little hat and dainty blouse it will pass with honours at the most up-to-date restaurant in town. Choose your top-coat wisely; pick a shade that will tone with the garments you already possess—the one we have pictured would look equally well over a silk frock or tweeds.*

BE firm with yourself and take only what you will absolutely need according to the length of your stay and the nature of your holiday. Do not be tempted to add that extra dress which, though undeniably attractive, clashes with everything else and needs a special set of accessories all to itself. Whatever you do, remember your wet weather oufit. I once went to a tourist resort noted for its sunshine and spent almost my entire time there garbed in raincoat and galoshes! Pay attention to your packing: put tissue paper between your frocks and tack all pleats; make special little bags for your shoes; see that the lids of cosmetic jars are screwed on tightly; do not forget to put in a pair of comfortable slippers (they will be more than welcome after a bout of sight-seeing!); label your luggage properly and take note that leather cases and hat-boxes look all the better for a polish with shoe-cream. Travel light—in these days when there is such a dearth of porters you will not only save yourself considerable worry over the safety of your baggage, but if your hostess is car-less, she will call down blessings on your head for not bringing a mountain of luggage with you.

**An all-purpose coat in mist-blue wool blanket cloth. It falls straight as a plummet from shoulder to hem, and has pocket-slots high on either side of the front.**

*(Photo: International Wool Secretariat).*

## *SLOW YEAR*

O year, grow slowly, exquisite, holy,
The days go on
With almonds showing the pink stars blowing
And birds in the dawn.

Grow slowly, Year, like a child that is dear,
Or a lamb that is mild,
By little steps and little skips,
Like a lamb or a child.

—Katherine Tynan.

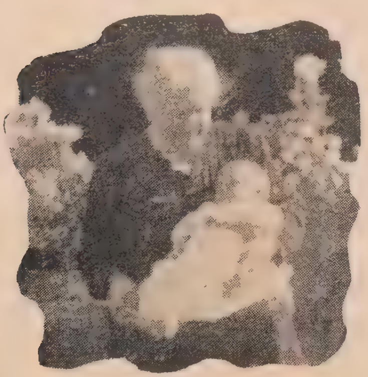
As for the journey itself, do not be so preoccupied in your attempt to finish a last-minute job of sewing or knitting that you have no time to enjoy the scenery. If you like to read, let it be something light and entertaining with a fair-sized print, so that your eyes are not strained unduly. On a night journey a warm rug and a pillow will help you to sleep, so that you arrive at your destination fresh and rested.

If you are travelling with children, you must be prepared to give time and consideration to their entertainment. A jig-saw puzzle or a new book, with an observation game by way of variation, will keep the older ones interested—it is the little folk who need most attention. Plasticine is the best thing I know of to keep small fingers busy (of course, you have to put in a little work on finger-nails afterwards!) A picture book and a few toys are useful, and it is always wise to carry some food. I never forget the occasion when I played escort to a lusty two-year-old on a long rail-trip and the train was hours late. Was Master Two ravenous and unmanageable?—not a bit of it. His mother had thoughtfully provided me with a few items such as rusks and baked apple pulp, and how that infant enjoyed his impromptu meal. Plain food is best for children, especially on a journey. Raisins are better than chocolate, and fruit and wholemeal sandwiches provide suitable nourishment without risk of digestive upsets such as richer fare often brings about. It is also a good idea to have an overall or play-suit handy to protect their good clothes from being soiled, and a face-towel is a necessity if they are to arrive looking spick and span.

**Just the thing for travelling—a fine tweed suit, by Digby Morton, in red and white basket check. The jacket is cut on a yoke with the new high revers, and is buttoned down the front, which gives it a very neat finish. The hat is by Aage Thaarup in red felt stitched with white.**

Here's hoping you enjoy your spring holiday!

# OLD FOLKS AT HOME



A LITTLE thought and care—the right word in the right place—are all needed to make the existence of our old folk comfortable and cheerful. When people get past the active stage in life, and become more or less dependent on the care and kindness of other people, they need special attention. Indeed, they deserve it. New Zealanders generally appear to realise their responsibilities to the aged, and they do what they can to make their declining years as full and as happy as possible.

The ideas put forward in this article may, perhaps, be of some help to those who have responsibilities towards the old folk. It is not suggested that you should vary your present routine, because old people dislike any change in set custom—but possibly you will find something of interest and maybe of value.

## *Warmth is Life*

It should be emphasised that warmth is one of the first essentials in the care of the aged. They must have warmth—it literally means life to them. Those caring for them should remember that in the old the action of the heart is less vigorous—the blood circulates more slowly, and the oxygenation of the tissues is less complete. Consequently they feel the cold more keenly. Another thing, the body fat, which ordinarily acts as a sort of natural overcoat, tends to waste, or else to hamper the action of the vital organs, and this, too, causes chilliness.

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You must remember, also, that many of these people are capable of very little outdoor exercise. They can't warm themselves up with a brisk walk, and sitting inside, especially on damp and cheerless days, is an extremely depressing business. In fact, it's the sort of thing that is liable to shorten their years.

Well, what's to be done about this question of keeping them warm? Wrapping up will do some good. Hot water bottles on the lap or placed at the back or at the feet will help, and hot drinks are warming and comforting. Indeed food and hot drink taken at regular intervals revive the old, but, of course, you have to take into account that hunger lessens as age advances.

*Contributed by*
*The Department of Health*

A rug over the knees and a shawl or scarf large enough to keep shoulders warm are also necessary. Clean pieces of old blanket or outworn garments picked and laid flat between two folds of clean material can be made into quite a comfortable rug, which can be made warmer if a few thicknesses of newspaper are used in the padding.

## *A Little Something*

So much for exterior warmth. Now for hot drinks. All elderly people should try and start the day with a good breakfast, one with a substantial supply of protein in it—the rest depends on individual body weight and activity. People who have what is known as a "dicky-bird appetite" and eat very, very sparingly need extra nutriment embodied in the hot drink to stimulate the circulation and give extra warmth. It is suggested that they should have something every two hours when out of bed.

At night there could be a hot drink available in a vacuum flask on a bedside table for use in the small hours of the early morning. Sleep often fails at this time, the heart's action slows down, and the dark hours seem without end. A hot drink at this time will often help an old person to fall asleep again, and perhaps remain asleep until morning.

As for the nature of these hot drinks for the old, milk is both nutritive and warming, then comes broth, and cocoa or chocolate. Tea and coffee are useful stimulants, but they should not be abused. Fat should be eaten sparingly, particularly where there is any family tendency to disease of the arteries.

Finally, just let it be emphasised that care in small ways, a cheery word and a smile, and an occasional caress—all these help to brighten the remaining days of our elderly folk, and to make life tolerable and even happy for them.

◆

## *Nostalgia*

THANK you, "F.J.B.," for a wonderful glimpse of home. The dear, familiar names—Geraldine, Temuka, Pleasant Point, and Cave—stirred me with enchanting mental pictures. (Alas, that such pleasant reminiscence should quickly resolve into an intense nostalgia for South Canterbury, which nearly 10 years in the North Island has failed to banish). Vividly I saw again the beautiful, verdant valleys, the smooth-flowing rivers, the almost English countryside—yes, and the floods, which occasioned worry for the grown-ups and excitement, connected with buckets and gumboots, for us. There were hurried, speculative trips to view muddy, tempestuous water hurling itself under a groaning bridge, and on a strangely silent morning several days later paddocks would be replaced by a giant expanse of sullen water, which reflected a grey, impassive sky.

Like the repetition of a well-known tale, flooding has again menaced my old home, for three feet of yellowish water recently swirled through the lower storey and its effect on the carpets was not exactly beneficial!

These recurring floods, with the consequent removal of precious soil, are very serious. Grant that a vigorous programme of reafforestation, of efficient extermination of pests which destroy the bush, of careful preservation of our remaining forests, may prevent Theodore Roosevelt's grave warning, "When the soil is gone, men must go, and the process does not take long," from coming true.

I am glad, "F.J.B." you found South Canterbury green and pleasant. May its greenness and loveliness be renewed to delight again native, visitor, and home-comer.—**"Bry."**

◆

# HOW SAFE IS YOUR HOME?

*ONE of the most important things about a true home is its atmosphere of safety and security. A home should be a place where people can relax, where they can feel sheltered from the stress of life outside. But unfortunately homes are sometimes very dangerous places, particularly for the women, young children, and old people, who are in them for so much of their time. Accidents in and around the home hurt more people than accidents in factories.*

*By* NORMA METSON, *Rural Sociologist,*
*Department of Agriculture, Wellington.*

EVERY accident has two causes—physical and mental. If, when you are hurrying down the passage, you step on a small mat and it slides from under you, the mat and the slippery floor are the physical causes of a nasty fall. The personal causes are first, that you were in a hurry, and so not as careful as usual, and second that you, or whoever was responsible for putting a small unanchored mat on a slippery floor, did not realise how dangerous it could be to someone in a hurry.

Familiarity breeds contempt of small hazards as well as greater dangers. You don't bother fixing the broken step, because everyone knows about it, and steps over it. But what about visitors who may not remember your warnings; or even yourself, in a moment when your thoughts are miles away, as they often are these days?

Here are some of the things around the home which most often cause accidents. Check up on them now, be alert for other possible dangers, and try to form in yourself and your family habits of doing things the safe way.

## *Fire Prevention*

Most country people are naturally careful about fire, because they realise that precautions are essential where, as so often happens, houses are of wood, open fires and coal ranges are always alight, water supplies are limited, and the nearest fire brigade is many miles away.

Fires are most often caused because of defective chimneys and fireplaces. There may be a crack in the fire-bricks, or the mortar may have crumbled away between them, leaving a space through which the heat can penetrate to the woodwork behind. The woodwork may char slowly for months before bursting into flames, so if the walls near a chimney or fireplace seem to get unusually warm, have them examined immediately. The chimneys and flues should be examined, too, as a matter of routine every time the chimney is swept, and this should be done regularly, because if soot is allowed to accumulate in a chimney and then catches fire, you not only have a dreadful mess to clean up, but the flying sparks may easily set alight another part of the house or nearby sheds and fences. Doors on stoves or coppers which won't shut properly are another danger, for they allow sparks and burning fragments to fall out on to the floor, and this could happen when there is no one about. Logs or lumps of coal which are too big for the grate are dangerous for the same reason.

All open fireplaces should have guards which fit right over the opening, for use when there is no one in the room, when children are playing, or when clothes are being aired, so that sparks and burning embers cannot be blown out into the room. If it is necessary to leave a fire burning when there is no one in the house, it should be banked down well with slack, and a guard placed in front of it. If a proper fireguard is unobtainable, an odd piece of fine wire netting can sometimes be found and used as a substitute. The woodwork round all permanently-installed heaters should be properly protected by metal or asbestos sheets and a concrete or tile hearth.

The use of electricity in the home has reduced one set of hazards, those which come from the use of candles and lamps with open flames. The liquid used for lamps has to be inflammable and under certain conditions may be explosive. There is always the danger that lamps or candles may be upset or dropped, and clothing or curtains may be set alight by contact with the flame. But electricity brings some risk of fire from other causes. Heaters, irons, toasters, and other gadgets left on and forgotten have frequently started fires, and so have defects in wiring or installations which lead to short circuits, sparks, and over-heating. For this, as well as other safety reasons, all electricity installations and major repairs must be done by qualified electricians.

Even when kerosene is not used for lighting or stoves most homes have stocks of kerosene, methylated spirits, benzine, matches, and other inflammable substances for which safe storage is needed. Fires have, for example, been caused by rats chewing wax matches, so these matches should be kept in tins, not boxes. If petrol is ever used for home dry cleaning, the garment should be taken right outside for the job to be done and left there until it is thoroughly aired. But it is much safer to use something like carbon tetrachloride, which is not likely to catch fire.

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People who smoke can be a menace to themselves and others if they are not careful of what they do with discarded butts and matches. Many tragedies have happened through smoking in bed, when a lighted cigarette in drowsy hands has set fire to bedclothes, or dropped to the floor.

If a fire does occur, prompt action will often prevent its spreading. If possible, a chemical fire extinguisher should be kept in a conspicuous place, and every member of the household should know how to use it. If shortage of supply or expense prevents this, buckets of sand and water can be kept instead. A hose which can be attached to an outside tap or pump is an additional safeguard, and a ladder should be kept handy.

**Summary:**

1. **Are fireplaces, chimneys, stoves, and heaters properly constructed and guarded?**
2. **Are inflammable liquids and materials stored in a safe place?**
3. **Are lamps and candles placed where they will not be easily upset and curtains cannot blow into them?**
4. **Are electrical fittings properly installed and used?**
5. **Are smokers careful?**
6. **Is fire-fighting equipment kept handy?**

## *Scalds and Burns*

Scalds and burns are most distressing accidents, because the injuries they cause are so painful and often disfiguring, and also because little children are frequently the victims.

Hot liquids in jugs, teapots, kettles, coppers, and baths are all sources of possible danger, and must be dealt with accordingly. Anything which contains a hot liquid should be kept well back from the edge of the table or bench, so that it cannot easily be knocked or pulled off by anyone passing, or by a small child pulling itself up by the edge of the table. Saucepans, too, should be kept back on the stove, and have the handles turned inwards so that they do not project. This may cause difficulty, however, if the handles become hot, so it is necessary to have plenty of pot-holders. A good substantial oven-cloth is a necessity too; thin ones allow the heat to penetrate too quickly, while holes allow the hands to come into direct contact with the hot dish if the cloth is picked up in a hurry to rescue a burning cake. Minor but painful burns and scalds often occur because people don't know how to handle equipment—how to fill hot water bottles without having them "spit," how to refill a kettle which has just been emptied of boiling water, how to turn a large, full oven tray, how to remove roasts from hot fat, and so on. Children should be shown how to do these things carefully and safely.

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9/6

The cords of electric jugs, toasters, irons, and other movable pieces of heating equipment should always be looped up out of harm's way and never stretched so tightly that there is a strain on the article. They should be detached when heating is finished, and not left to dangle over the edge of the table. If the electric plug is not handy to the table or bench where the equipment is used, put a hook on the wall for the cord to run over. This will put it out of reach of small hands and by keeping the cord close to the wall will lessen the risk of anything else catching on it.

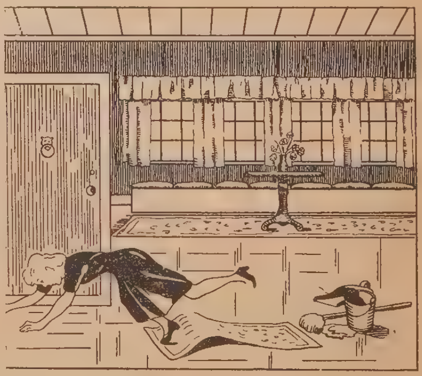
Some people assert that hot baths are dangerous to health, which is problematical, but it is quite certain that they can be dangerous in other ways. Babies have been hurt through being put into baths too hot for them; toddlers leaning over to investigate the taps or soap dish have fallen into baths to which no cold water has been added; grown-ups stepping into one end of a bath which appeared quite cool have discovered that the water has not been properly mixed and that the other end or the bottom of the bath is scalding hot. The cold water should always be put in first when a bath is being prepared for a child, and then the hot water added. Adults should always be sure that their own baths are cool enough all through before they get into them, particularly if the taps are at the end of the bath, and have been running one at a time.

Coppers on wash day cause surprisingly few accidents, but they are a definite danger, especially if they are allowed to boil over, and there are small children about. The lid should always be kept on the copper if there is any chance of a child's climbing up and falling into it.

A guard over fires and heaters is essential to prevent small children from hurting themselves in all sorts of ways. The pretty red colour of the flames or glowing bars is so attractive, it is so easy for unsteady feet to stumble; celluloid toys and flannelette clothes catch fire so readily.

**Summary:**

1. **Are all hot dishes and containers with hot liquids handled with due care?**
2. **Are electric flexes looped up out of the way?**
3. **Are heaters and fires guarded when small children are playing in the room?**



## *Falls*

New Zealanders don't often fall downstairs, for the simple reason that the great majority of our houses have only one storey. But even the two or three steps leading up to porches and verandahs have been the scene of many nasty falls, especially for old people. Miscalculating the number of steps is one reason; loose or broken boards, mats which slip, and lack of a handrail on long or steep flights are others.

When a woman is working around the house she often has to reach up to high levels. She has to put up and take down curtains, replace electric light bulbs, dust picture-rails, and so on. And although it seems almost incredible, women have been known to use such obviously unsafe things to stand on as card tables, rocking chairs, the arm of another chair, or even two chairs piled one on top of the other. Falls from such supports, overbalancing, and over-reaching have had serious consequences for many women. There is no substitute for a good light pair of steps, but even they require care in use—they must be properly opened, stood on a level, non-slippery floor, and no one who is at all inclined to dizziness should attempt to climb on to the top platform.

If children's toys and grown-ups' tools are left lying round the floor instead of being put away when they are finished with, it will be only a matter of time before someone trips over them. In the same way highly-polished floors, small mats, and carpets with turned-up edges, are a continual menace. Such trips and slips are funny enough in a slapstick screen comedy, but in real life they are liable to end in broken bones, sprained ankles, and nasty bruises. Four rubber jam-jar rings stuck underneath the corners of a mat make an effective anchor, and a floor can look nice without having to be polished within an inch of someone's life.

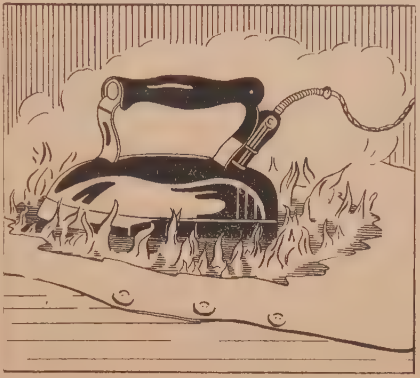
People expect the day and its work to hold some hazards, but they generally have the feeling that during the night they are safe. But people fall out of and even into bed, and stumble over furniture or bump into the edges of half-open doors when they try to walk about in the dark. One of the best ways of preventing such accidents is to have a light which can be switched on and off from the bed or else to keep a torch handy. Bedroom furniture should be arranged in an orderly manner, and kept in its usual places, so that there is nothing unexpected for people to stumble into if they do have to move about without a light. For the same reason passages from bedroom to bathroom and lavatory should be kept clear of obstructions.

Falls while getting into or out of the bath are common, especially among elderly people. A firm handrail which they can hold on to, installed at a convenient height, will eliminate this hazard, and, of course, the soap should be kept where it belongs—in the soap-dish. Water or fat spilt on a linoleum floor makes it very slippery, and should be wiped up immediately.

It is a great advantage to have concrete paths around the house, but they become very slippery with frost in the winter. If the path is on a slope, the surface should always be ridged or roughened to prevent slipping, while a sprinkling of sand or gravel can be used on flat areas. Keep a watch in winter for drips from taps, spouting, or tanks which may trickle across a path and then freeze.

**Summary:**

1. **Are steps kept in good repair and provided with a safe handrail?**
2. **Is there a small pair of steps for use indoors?**
3. **Are toys and tools put away after use?**
4. **Is furniture in bedroom and passage areas arranged for safety?**
5. **Are paths safe in winter?**



## *Electricity*

Electricity and electrical appliances properly installed and used are perfectly safe and a great boon to the housewife. Electric light and heating actually reduce fire hazards, but they do introduce some new dangers. It is quite safe for the handy man or woman to make minor repairs to plugs and flexes and to replace blown-out fuses, but all major repairs and installations should be done by qualified electricians.

Danger signs are easy to detect. Rubbery smells, hot plugs, a small shock, switches or connections which are loose and rattling, frayed or perished cords, and sparks should be the signal for investigation and necessary replacement or repairs.

There are several common-sense precautions to be observed when using electrical appliances which have flexes and plug into a wall point. Flexes or extension cords should never be run permanently around corners, through doorways, or across traffic lanes on the floor. Never overload wall plugs or run heaters from light sockets. Fuses act as the safety valve of an electric system, so if one blows out, it means that there is a defect somewhere in the equipment or wiring, or else that the circuit has been overloaded. When a fuse has blown out it should always be replaced with the same type and thickness of wire. Always remember to turn off the switch and pull out the plug of an electrical appliance when you have finished using it, and also if you are called away to answer the 'phone or doorbell. Many fires have been started because someone has left an unused iron switched on to become red-hot and burn through a wooden table. It is important, too, when taking a plug out of a socket always to pull the plug and not the cord, otherwise the wires may be loosened or pulled out of place.

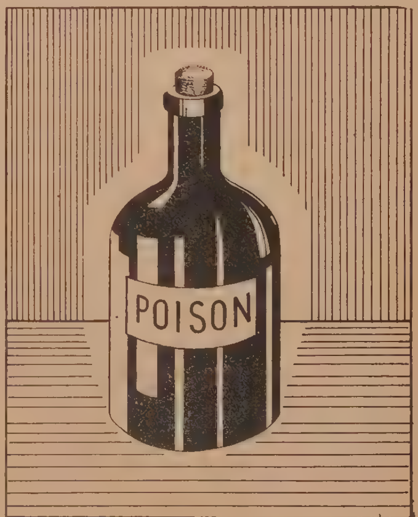
Electric shocks are caused by a leakage of current from a defective cord or equipment passing through a person's body and becoming earthed. To avoid danger from this source you should be careful to see that equipment is properly earthed and that you have dry hands, are standing in a dry place, and are not in contact with metal pipes when you handle electrical equipment. This needs to be watched particularly in laundry, kitchen, and bathroom. Don't, for example, switch the bathroom light on or off while you are standing in the bath, or use the switch on the washing machine with one hand while you are turning a tap with the other.

**Summary:**

1. **Are electrical appliances in good condition?**
2. **Are worn and broken cords promptly discarded?**
3. **Are installations and repairs made by a competent person?**

## *Poisons*

Most homes have a medicine chest which contains some poisons, and farm homes are more likely than others to have stores of such things as garden sprays, rat poisons, weed killer, and so on. Safe storage of such substances is the first essential. A locked cupboard or an extra high shelf are alternative suggestions, and, of course,



no poisonous material should ever be kept anywhere near food. Clear labelling is required also to avoid possibilities of mistakes when poisons are being used. In the medicine chest all bottles containing sleeping draughts, iodine, or anything which could be poisonous when taken in an overdose or by mistake should be kept on a separate shelf. In addition to the label, there should be some other way of marking the bottles as dangerous—a rubber band round the top or a few pins stuck into the cork so that they are distinguishable even in the dark. Ordinary bottles of medicine, pills, and household remedies should be put away when they have been used and kept out of reach of children who might easily be tempted into tasting and swallowing such things.

Cases of food poisoning are sometimes recorded from unexpected causes. Duck eggs should never be used to make Spanish cream, or in other recipes where the egg is not cooked. They are quite safe if well cooked, because the cooking destroys the effects of a poisonous substance which occurs very occasionally in some duck eggs.

Standard recipes and methods should always be used for preserving food, especially meat and vegetables. Bottled vegetables should always be boiled for at least 15 minutes before they are eaten.

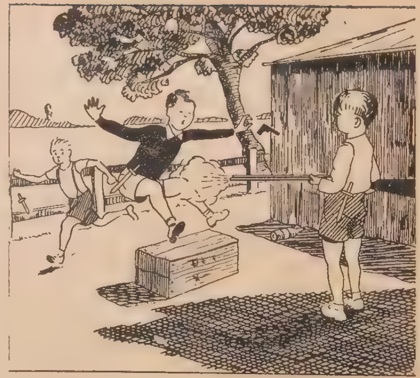
If there are any poisonous plants growing in the neighbourhood, children should be taught to distinguish them, and warned about them, especially if they have attractive berries. They should also be trained in habits which help to safeguard against hydatid infection, such as thorough washing of hands before eating, and no unnecessary handling of dogs.

**Summary:**

1. **Are all poisons stored separately?**
2. **Are poison containers clearly marked?**
3. **Are medicines marked and stored safely away from children?**
4. **Are children taught to identify poisonous plants?**
5. **Are precautions taken against food poisoning?**

## *Tools and Guns*

The tools used around a farm are many, varied, and usually sharp. They are particularly dangerous to small children, but anyone is liable to step on the prongs of a rake or fork which has been left lying about, or to cut themselves through using a slasher the wrong way.



All tools, and especially sharp-edged ones, should be put away immediately after use. In the house sharp knives and scissors need to be kept away from young children. Children naturally want to copy their parents in using tools, so they should be taught how to handle them correctly as soon as they are old enough to learn. If guns are kept in the house, they should be unloaded and never played with, but again children should be taught how to handle them safely. Ladders seem simple enough, but they, too, need to be used with care. Uprights and rungs should be sound, and if the ladder has not been used for some time, it should be examined thoroughly before anyone uses it again. If there is any chance that the bottom of the ladder may slip because the ground surface is very smooth, uneven, or sloping, a second person should always be standing by to hold it firm. Small pieces of rubber nailed to the bottom of a ladder will help to prevent slipping on smooth surfaces. If paint, bricks, or other materials are to be used, it is safer to haul them up with a rope rather than to try and carry them up the ladder. The sides and rungs of the ladder should be free of projecting nails and splinters which may tear hands and clothing.

### *Play Safe!*

1. **Form safe habits.**
2. **Develop safety consciousness.**
3. **Act promptly to remove dangers.**

**Summary:**

1. **Are tools and guns kept in safe places, and used with due precautions?**
2. **Is the ladder safe to use and used safely?**

## *Children and Old People*

Most households have children or old people, or both of these groups, which means that older children and adults must be doubly watchful.

When there are small children it is specially necessary:

To keep out of their reach all sharp tools, matches, medicines, and small things which could be swallowed.

To be eternally careful with anything containing a hot liquid.

To guard all fires and heaters.

To arrange beds and bedclothes so there is no danger of smothering.

To have, if possible, a safe, enclosed place where children can play outside.

To teach children as young as possible the right and safe way to do things.

Old people must be protected from the effects of their physical feebleness and possibly failing sight and hearing. They need handrails and adequate lighting for safety on steps and stairs, and, of course, there must be no slippery polished floors to negotiate, because falls are the accidents of which they are most frequently the victims. A light switch near the bed and a clear passage from the bedroom to bathroom and lavatory are also needed.

All this sounds very detailed, but the cases which have been mentioned are really just illustrations of basic safety rules. The physical causes of accidents are fairly easily eliminated once you become aware of them. The mental causes are not so easily dealt with. It is, for example, very difficult for a housewife, tired at the end of a long day, to be alert to all possible hazards. Almost any type of activity entails risks of some sort, and it would be impossible to take account of all of them, all the time, without being reduced to a state of permanent and neurotic apprehension. The best way out of this dilemma is, as far as possible, to reduce safety precautions to a matter of habit, so that they are carried out automatically without need for much conscious thought or effort. Habits such as putting the guard in front of the fire before leaving the room, and putting sharp tools away immediately after use, are easily formed, and it is not long before more thought would be required to neglect them than to carry them out. In the same way, if children are taught these things to begin with, it becomes natural for them always to do them.

Awareness of dangers is the first step in accident prevention. Prompt action to remove such dangers is the second. Another essential is that every member of the family and household should develop "safety-consciousness" because so often it is the thoughtlessness of one person that involves someone else in an accident.

[N.Z. Dept. of Internal Affairs photo.

# Holiday Memories

*A TOUR overseas; a childhood sojourn at a well-known English watering place; a camping trip on the Continent; visits to famous New Zealand beauty spots such as Lake Taupo, the Alps, the southern lakes district, the West Coast, and Stewart Island—these are some of the happy memories of holidays enjoyed by various "Good Neighbours."*

*There was so little to choose between the entries of "Clovelly," Taumarunui, "Effie," Murchison, "Homespun," Halcombe, and Robin Gold (aged 11 years), Kowai Bush, Canterbury, that we are awarding a special prize to each. Highly commended: "Helen," Auckland, and "Pet," Te Awamutu.*

## *Special Prizes*

IN April, 1939, my husband and I were members of an Empire Farmers' Party on a tour of Europe. On the eve of our departure excitement ran high: all was hustle and bustle as we finished our packing and gave the new farm manager his last instructions. We left from Auckland. Amid streamers and farewell exchanges from our many relatives and friends, the Awatea pulled out from her moorings to glide gracefully down the Waitemata Harbour, and our great adventure had begun. On the third morning we entered the beautiful Sydney Harbour, passed under the Sydney Bridge, and were soon ashore. During the next 10 days we explored the great metropolis as well as going inland to the Blue Mountains. Then we boarded the liner which was to carry us to the other side of the world. En route we called at the garden cities of Melbourne, Adelaide, and Perth, and by this time we were enjoying every moment of shipboard life.

Our first acquaintance with the East was when we arrived on a perfect spring morning at Colombo, the gem island of Ceylon. The tropical trees with their vivid scarlet, pink, and blue blossoms were delightful to see and many of us motored up to Kandy for the day, and drank real Ceylon tea. Aden, our next port of call, is known as the "white man's grave" on account of the scarcity of vegetation and the fact that it rains only every 10 years or so. After a morning ashore here seeing the famous tanks, built, it is said, by the Queen of Sheba, we were glad to be aboard ship again. For the next three days our route lay through the Red Sea and we spent happy hours lazing in our deck-chairs watching the myriads of flying fish. The sea's surface looked almost like blue velvet and everything was perfect except the intense heat.

One morning we were awakened by the jabbering voices of natives and found ourselves riding at anchor at Suez. After a very early breakfast we went ashore in barges and were soon motoring swiftly across the desert. We passed through Heliopolis and arrived at Cairo before lunch. This wonderful city where east meets west was enchanting with its modern buildings side by side with those of the era B.C. In spite of a temperature of 120° our dragoman succeeded in showing us the ancient mosques and the museum in which were housed the treasures from King Tutankhamen's tomb. This building was air-conditioned and lovely and cool inside. After lunch we motored up to the pyramids. In the meantime our liner, having passed through the Suez Canal, was awaiting us in the evening at Port Said. Some time during the night we weighed anchor and next morning we were steaming through the blue Mediterranean Sea. Before reaching England we spent a day in Naples, and also visited Monte Carlo, Nice, Toulon, and Gibraltar.

After three days in London we left for Amiens, where we visited the Somme battlefields; then off to Paris for a week's sightseeing. After marvellous sunny days in Paris we left for Lucerne in Switzerland; while here we inspected a cheese factory at Eschenbach, passing on the way the "Lion of Lucerne," a huge lion carved from solid rock. A few days later we arrived at Lugano, where we stayed a night before reaching Milan, where we visited the magnificent marble cathedral and the Church of St. Maria della Grazie, memorable for Leonardo da Vinci's famous painting of the "Last Supper." Then off to Venice to enjoy sightseeing in gondolas.

For the next 10 days our route lay through Germany and Holland, after which we spent more than a month touring Britain by charabanc. Alas! all good things come to an end. The day our party was disbanded there were many sad hearts, for we had made many lasting friendships during our 40,000-mile tour, which proved to be the most memorable holiday in our lives.—**"Clovelly," Taumarunui.**

ONE day early last December our teacher had a bright idea—she decided to take the senior pupils for a week's holiday to Arthur's Pass. We shared the cost of the train fare, rent, milk, and bread, and each took the following articles: 1 sack containing 2 grey blankets, 1 pillowcase; 1 tea towel, table utensils, personal accessories, eggs, fruit, and vegetables. Most of the mothers added pies and cake, too. What a time we had packing up!

Our journey lay through magnificent river and mountain scenery. We were all very excited when we caught a glimpse of two wild stags. With the help of the local grocer, who kindly carted our piles of luggage, we were soon settled in our cottage. There were 12 of us altogether, so we were lucky to have a cottage with plenty of beds and a good dining-room.

We left at about 9 o'clock for our first walk to the Bealey Glacier. After tramping for several miles along the road we turned into a beautiful mountain track, where we found plenty of birds and trees to interest us. The glacier sparkled brilliantly in the sun, although sprinkled with ash from the Australian bush fires. The next day we did the long walk over Arthur's Pass to Otira. Most of this walk is in the beautiful Otira Gorge. Here we saw many rare plants and also, to our great joy, a tui. It was great fun coming back by train through the five-mile tunnel to Arthur's Pass. We also walked to the Devil's Punchbowl, where a small creek falls over a high cliff into a huge rock basin, sending showers of spray over us. Next day the elder children climbed Mt. Blimit.

We ran a concert in the Arthur's Pass hall, the proceeds going to the Red Cross. Most evenings we were glad to tumble into bed, but on the night of the concert and the fancy dress party we went to bed about half past ten. We held an impromptu party in our cottage. The characters included Darby and Joan, a pirate, a ghost, a boy dressed as a girl, a girl as a boy, sweets boy, two witches, a paper parcel, and a fortune teller.

On our last night we gave our teacher a present for her kindness. Packing and cleaning kept us busy on our last day. I do not think any of us will ever forget this holiday.—**Robin Gold (aged 11 years), Kowai Bush, Canterbury.**

My girlhood days were spent in England, where I had many happy holidays with my parents, sisters, and brother at various seaside resorts. Every summer we spent a few weeks by the sea. How we children looked forward to the day when our luggage was all packed and ready and we clambered into a four-wheeler (this was before the days of taxis) and drove off to the station to board the express for Ramsgate, our favourite watering-place. It was Queen Victoria's favourite, also.

ISSUED BY THE DEPT. OF HEALTH

## Guard Baby Teeth like these

## to get Adult Teeth like these

In our last dental message we emphasised the need to provide, in the ante-natal stages, for sound teeth for baby. Now we take the advice a stage further.

Why should the first teeth—these "milk" teeth—require special care? Here are the reasons:

- They act as guides to the permanent teeth. If baby teeth are lost too soon the spaces close and the permanent teeth, having less room, come through crooked and ugly.
- Decay in baby teeth will impair the child's health, and may damage the permanent teeth next to them.
- Baby needs all his teeth to chew properly. Good chewing promotes good digestion.
- Sore teeth prevent the proper chewing of hard food, which strengthens the jawbone, and makes it grow.
- Children with their baby teeth missing tend to lisp or speak indistinctly. (Even stammering may be developed).

The first baby teeth to appear (the two front incisors) should normally last until six or seven years of age, and the others up to 11 years of age.

**EVERY CHILD SHOULD RECEIVE ITS FIRST DENTAL EXAMINATION AT 2-3 YEARS OF AGE. ENROL YOUR CHILD AT A SCHOOL DENTAL CLINIC OR WITH YOUR DENTIST.**

**THE PRE-SCHOOL DENTAL CLINIC TAKES CHILDREN UNDER SCHOOL AGE.**

26a

FOR A HEALTHIER NATION

There was always a scramble for seats by the windows and a race to see the sea first. The train ran through a tunnel under the cliffs and the station was right behind the promenade, just a short distance from the water. Most of our days were spent on the beach, digging in the sand, building castles, hunting for shells, scrambling over the rocks, and peering into pools at the sea anemones and other rock-dwellers. Paddling and bathing were also thrills, and we delighted to ride out into the surf in the bathing machines which were like small huts on wheels and drawn by a horse. Steps led down to the water and there was a long rope dangling for the use of the timid ones. These machines were pulled out of the water as the tide rose, and we had to remember which one we had left our clothes in or else there was trouble!

## Competitions

*SEPTEMBER*

**September 15 is the final day for sending in your ideas on "The Art of Being a Good Neighbour."**

*OCTOBER*

**Plans for fostering fuller enjoyment and appreciation of country life must often exercise the minds of "Good Neighbours." Here is a chance for you to express your views on a wide variety of subjects which concern the everyday life of country dwellers. The provision or improvement of housing, health services, educational facilities, transport, recreational, cultural, and community activities is a matter which vitally affects women in rural districts. Entries, which close on October 15, should not exceed 250 words.**

**"IN WHAT WAY WOULD YOU IMPROVE RURAL LIVING?"**

**First prize, 10/-. Second prize, 5/-.**

**"MARY,"**
**"Journal of Agriculture,"**
**Box 3004, Wellington.**

Some days we went for charabanc rides to places of interest in the surrounding districts. The historic town of Canterbury with its grand old cathedral was very interesting. Dover Castle, on the white cliffs, entranced us. We passed through the quaint old-fashioned town of Sandwich on our way to Dover. Its timbered shops and houses with their overhanging upper storeys could almost be touched as we drove through the narrow streets. We also viewed the ruins of Richborough Castle—we were told that this was where Julius Caesar first landed in England.

We often hired a goat-chaise to take us home from the beach. The hills were steep, but the goats were strong and sure-footed and the little carts very comfortable to travel in. Donkey rides along the sand were another source of enjoyment and the cause of many a spill, but the sand was soft—so why worry! Punch and Judy shows stand out in my memory, and we never tired of watching the funny pair go through their antics. We always tried to see behind the scenes, but the showman was too quick for us. At the end of the holiday we all compared our degrees of sunburn—our greatest ambition was to go home as brown as berries.—**"Effie," Murchison.**

## Pear-trees by the Fence

*Pear-trees translucent white;*
*(My heart is sad to-night).*
*Willows brilliant green;*
*(Against the rail I lean).*
*Catkins and pearly blossom fill the air.*
*The pear-tree by the fence*
*(How soon we must go hence!)*
*Is a pillar of snow.*
*(A man may never know*
*How few springs such as this will be his share!)*

*—Su Tung-p'o.*

MY first trip abroad was filled with happy memories. The holiday contained novelty, beauty, interest, and movement—all the components of a satisfying holiday.

I was one of a party of students. Our first stay was at Bruges, "the city of bridges." Here we heard the carillon from the belfry, which is said to have the finest peal of bells in Europe. I loved the quaint old town with its medieval buildings and canals. We watched the women at work outside their houses making intricate patterns in fine lace. One day we walked along a canal into Holland and were startled by the clatter of clogs on the cobbled streets as the children ran joyfully from school in the same way as our own do.

Our journey continued by train to Trier. The Ardennes particularly caught my imagination as we passed through densely-wooded hills with deep valleys between and castles perched on apparently inaccessible heights. Late that night we reached Trier on the Moselle. Rowing boats carried us to the opposite bank, where our camp lay in the grounds of a ruined country mansion. The house still retained a little of its old glory; chandeliers hung in the rooms which bore traces of cream and gold paint. The view from the balcony on the first floor was magnificent and never to be forgotten.

Trier is a picturesque old town with many traces of Roman occupation. There is a fine gateway of black stone and the remains of an amphitheatre, grass-grown now for many centuries.

All too soon we moved on, journeying to St. Goar on the Rhine, and here fresh beauty and interest awaited us. We camped in the grounds of Rheinfels Castle, now a ruin, standing 300ft. above the town. The Rhine gorge is steepest here, and above St. Goar, on the opposite bank, was the Lorelei. St. Goar itself is a pretty little town only two streets wide, for the cliff rises sharply behind it. All the slopes of the Rhine are terraced, and here grow the grapes for the famous Rhine wines. I never tired of watching the endless traffic on the river—paddle steamers crowded with tourists, tugs pulling lines of barges heavily laden with merchandise, and canoes paddled by sunburnt men and women in bathing suits.

One unforgettable trip was to Heidelberg, with its famous old university and the fine new one which has replaced it.

Regretfully we boarded the ferry steamer on our homeward journey. We slipped down the Rhine between hills and castles of legendary fame to Cologne, with its lovely cathedral. Two days at Aachen completed the holiday. Fourteen perfect days for the modest sum of £5!—**"Homespun," Halcombe.**

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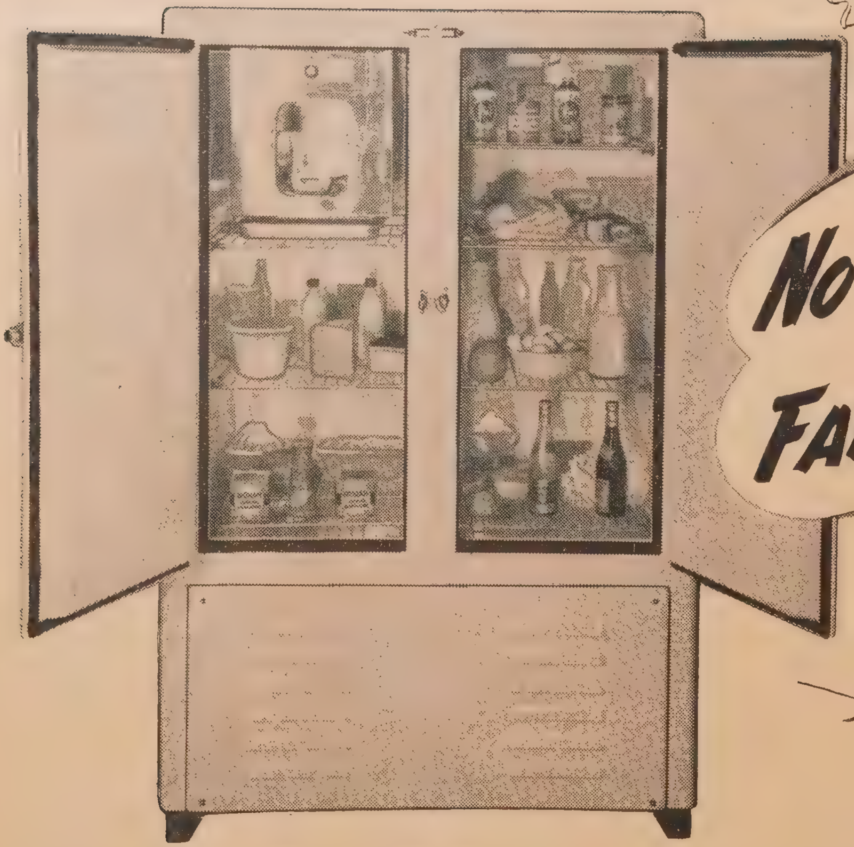

## No 'V' Day Yet for Farmers' Wives

TODAY, with a hungry world demanding more and more food production, farmers . . . and farmers' wives, have to work as hard as ever.

In farm households, much time is spent in the planning and preparation of adequate and appetising meals.

Here's where the Farm Model Frigidaire can help you save time, trouble and fuel. Food can be prepared days in advance and kept as fresh, as tasty and as delicious as though it had just been cooked.

In emergencies, sufficient food for a full week can be prepared and kept ready.

The Farm Model Frigidaire . . . designed for use in New Zealand farm households . . . incorporates all the modern principles of domestic refrigeration. It has 18 cubic feet of space, 17½ square feet of shelving, and features scientific cold distribution, ultra-modern design, trouble-free mechanism, dependability and simplicity.

FILL IN THIS COUPON TODAY—Learn how the Farm Model Frigidaire can help you plan better meals and save you time, fuel and trouble.

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# Eastern Journey

*IT will be a long time before tourists will be able to go globe-trotting once more. Meanwhile, would-be travellers must content themselves with memories of former trips. So many countries have been devastated by war, so much of value and historical interest has been destroyed, that those of us who journeyed overseas in pre-war years should consider ourselves fortunate indeed to have seen the beauty of other lands before destruction rained down upon them from the skies.*

I WILL never forget the joy of sailing into Victoria Harbour on a clear, cold morning and seeing the junks with their yellow and russet and parchment-coloured sails hovering like great butterflies over the blue water. Inshore jostled hosts of brown sampans, each the home of a Chinese family. Every boat was adorned with strips of crimson paper to frighten away the evil spirits, on deck the women were preparing vegetables for the mid-day meal, and cats and children played noisily together in the thin sunshine. Little fishing vessels were propelled right up against the side of our liner and boys thrust up round, wet nets and enacted a comical pantomime of signs in the hope of inducing passengers to throw them coins. Immediately I descended the gangway a pock-marked youngster accosted me: "Missie, give me ten cents; Missie, give me ten cents. Got no momma, got no poppa, Missie, give me ten cents." "Missie" walked along the wharf trying to appear unaware of the stalking Nemesis at her heels!

## Coastal China

Hong Kong shops were full of porcelains and lacquer, silks and brocades, exquisite ivories, bronze images and jades—all the loveliest things of the East seemed to have found their way into these bazaars. I remember exploring the winding alleys of the Chinese quarter and accidentally becoming entangled in a procession, headed by men with curious musical instruments, and willow-patterned lanterns carried aloft on scarlet poles.

Later I had an opportunity to drive round the island and glimpse its clusters of Chinese houses, its opal-smooth bays and winding hill roads, its water reservoirs amid their setting of emerald trees, and its imposing European residences ranging right to the top of the peak whence could be obtained a magnificent view of the harbour with the blue hills of China in the background. At night the Peak became a veritable fairyland of twinkling lights. I have a vivid recollection of coolie women carrying baskets of stones and working on the roads, and of seeing a coffin covered by a richly-embroidered cloth being carried on the shoulders of four bearers and followed by a straggling line of white-robed mourners holding paper flowers and banners in their hands.

Chinese coastal towns offered practically every form of transport from the humble rickshaw to an up-to-date taxi, but it was often much more fun to wander through the busy streets on foot. Business became particularly brisk after dusk, and all manner of vendors set up little stalls on the sidewalks. For a few cents you could buy prayer-rags or persimmons or sweetmeats; you could see a living crab with the head of a woman—an optical illusion created by the skilful placing of mirrors; or you could have your fortune told by a withered old crone of a soothsayer.

### From a Sundial

*Here stand I ever lonely amidst the flowers tall,*
*While o'er my figured bosom faint shadows slowly fall.*
*And to the busy world without, whose life by hours I keep,*
*I say, "'Tis time to rise," and then, "'Tis time to sleep."*

*—Sent in by "Roundabout," K.C.*

## Colourful Philippines

Manila, the capital of the Philippines, is always associated in my mind with colour—green trees shading wide boulevards; grassy spaces brilliant with red and yellow canna lilies; rosy-flowered hibiscus and poinsettias in crimson leaf. The Filipino women wore beautifully-embroidered blouses of gauze with enormous butterfly-wing sleeves, and coral, flame, or magenta skirts looped up to display a provocative flounce of white petticoat. The young bloods brightened their European tailoring with gaily-patterned ties and shirts of pink or violet tones. Even the dustman sported scarlet trousers! Nor was this love of colour confined to personal adornment—the carromata, the two-wheeled carriages, had vermilion hoods, and the ponies which drew them wore brass-studded harness; the more metal on the trappings, the wealthier the owner.

The old Spanish city, or Intramuros as it was called, with its narrow cobbled streets and green-shuttered houses dominated by the great cathedral, had an aquarium of rainbow-hued fish in one of the bastions of the ancient wall, and during my tour of the modern Manila the guide took me through a large cemetery noted for its coloured statuary, including a pink-roofed pagoda guarded by jade-green dragons and reputed to have cost nearly £800.

Viewed from the sea, Zamboanga, on the island of Mindanao, presented a vista of coconut palms and thatched huts against a back-drop of green and bush-covered mountains, the topmost peaks hidden in mist. Davao, chief port of the southern Philippines, possessed most picturesque native quarters. Barbers' saloons, tailoring establishments, and workshops of all kinds were open to the public gaze. Now and again a few shaggy black pigs meandered along the main street, and it was not unusual to find pigs and fowls and dogs all living together underneath the houses, which were built high off the ground. A cock-fight was in progress in one compound and on the outskirts of the town I watched a water-buffalo indulging in a mud-bath. Laughing urchins begged me to have my shoes shined (I happened to be wearing gay canvas sandals, but that did not daunt their professional ambitions), and an elderly lady seated on the footpath making cigars showed me how to roll them,

puffing away at a sample of her wares all the while with obvious enjoyment. Most of the natives smilingly greeted the tourists in English, and the mothers brought their babies to the doorways for us to admire.

### *New Britain*

The palm-fringed harbour at Rabaul (New Britain) had a tiny rocky island in the middle of it, which appeared suddenly overnight as a result of a subterranean upheaval during a storm. The thousand-foot cone of the volcano called by the natives the "mother" formed a distinctive landmark. The other two craters were known as the "north daughter" and the "south daughter" respectively. Giant trees lined the roads (formed by the Germans before the territory came under Australian mandate) and every bungalow had airy, creeper-hung verandahs, and lawns bordered with bougainvillea and other tropical flowering shrubs. As I followed the steep roadway cut through the bush on the hillside, I met a native woman carrying a bag of vegetables and coconuts and balancing astride her shoulders a naked brown baby who smiled gleefully from under the shade of a large black umbrella. The bush echoed with silvery bird-songs and lizards rustled through the heaps of dried leaves and tawny butterflies hovered over the brilliant green undergrowth.

### WEATHER

*Ah, sunshine is delicious,*
*Rain is refreshing,*
*Wind braces up,*
*Snow is exciting;*
*There is really no such thing as bad weather,*
*Only different kinds of good weather.*
*—Sent in by "Tinkle Tinkle."*

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The local market was held out of doors under the mango trees. The limes, bananas, etc., were attractively displayed on leaves, additional supplies being contained in plaited fibre baskets. I noticed that the men folk were the ones to wear bright colours: their sarongs were of carmine, sienna, emerald or yellow ochre, and they were not averse to bleaching their hair white or mud-colour, or tinting it red. I even saw one youth with all three shades in his fuzzy hair at the same time! Down at the jetty the boys were diving from two high posts that had been erected some distance from the shore. The water was so clear that you could see the fish swimming about in the depths below—darting shapes of jade and blue and gleaming bronze-gold.

## *Spring Came Dancing*

*Spring came dancing down the silver street of Day,*
*Spring came dancing, for she couldn't keep away,*
*And all around the dusty town her magic fingers strayed,*
*Leaving joy in every heart, sunshine in the shade.*
*Spring came dancing . . . and I heard her mellow call*
*Echoing and echoing around my office wall,*
*Making magic melody, singing silver song,*
*Leaving gladness in my heart though the day was long.*
*Spring came dancing—and although she didn't tell,*
*She left a secret in my heart for you to share as well;*
*She said, "As long as Joy is yours, and Beauty you can see,*
*I'll come again, and always bring a greater gift for thee."*
*—Mary Kitching.*

I lingered for a while in the museum, which was full of island curios—spears and arrows and carved canoes; cooking vessels made from gourds; bales of tapa cloth; hideous masks used in tribal dances; coral and shells and axe-heads; an heirloom purse hung with dogs' teeth. I also visited one of the schools and listened to happy-faced, dark-skinned youngsters singing and reciting in Chinese and English. But the greater part of the long, hot afternoon I spent in the gardens among the bamboo thickets and the palms and the fig-trees. There were gaudy-plumaged birds in cages and the shrubberies held strange, exotic flora: pink, waxy-petalled blossoms hanging among brown seed-pods, round as a ball, all on the same branch; bushes covered in trumpet-shaped, succulent creamy-green fruit; shrubs with flower-heads like big red-gold bells; thin saffron fingers of seeds beckoning from ancient boughs.

. . . . .

We were due to sail at dusk. In the half-light the hills and trees were reflected like blue-grey shadows on the quiet water as the boat passed beyond the twin rocks that indicated the harbour entrance. Alas! that this lovely harbour, like so many others, should so soon have its peace ravaged by the tide of war.

## A New Garden

We have left our old home and I have been in the throes of packing and trying to sort myself out of boxes and suitcases, while tucking in the precious plants I brought along to begin a new garden. I always seem to move to a place with a tiny hedge—when it has grown up to a protective height I move on: that's my fate.

A few moments after crossing the threshold of my new home the mail arrived with a big parcel of lavender plants from "Homespun." So the children and I have been busy beginning a perennial plot, a rose plot, and preparing one for all sorts of annuals. Before long I hope to make this place a thing of beauty, too. I do love lots and lots of flowers inside and out. It seems so odd not to have even a spray of ornamental shrub, but early jonquils are peeping out, so it won't be long before I have something to put in the vases. The pot plants are already recovering from being suddenly uprooted. You can imagine how eagerly we look for new shoots to see if our treasures have all taken root.—**"Tiggetty Boo."**

# Mary's at - Home -

WHAT a lot of interesting pars there are in the "At Home." It is always a pleasure to me to read other women's experiences, and I find "Tiggetty Boo" and "Tinkle Tinkle" women after my own heart—home builders and garden lovers. I hope to hear more about their gardens in future issues of the "Journal." The experience "Way Down South" had with her relatives' children had its amusing as well as exasperating side. I hope I'm not too old-fashioned, but I do find modern children quite a problem. Much of it is due to the way in which they are brought up. Modern parents believe in self-expression, and quite rightly so, but it can be overdone. To me, the most appalling part is the lack of religious instruction—if children are not taught a simple faith in God, what have they to cling to as an ideal in the trying days ahead?—**"Vista."**

## *Meadow Pond*

*This meadow holds a looking glass,*
*Set in a frame of emerald grass.*
*Woolly lambs stop to stare*
*At other lambs mirrored there;*
*And in a blue inverted sky*
*Silver clouds go sailing by.*
*You find such unexpected things—*
*Reflected flight of chaffinch wings,*
*The underneath of daisy flowers,*
*And where bees hide in foxglove towers.*
*Come this morning and you'll see*
*A strange, topsy-turvy tree,*
*A toadstool and a bracken frond*
*Pictured in this meadow pond!*
*—Gweneth Bell.*

I DO appreciate our "Good Neighbour" section. For all the bustle and strain of life there is still time for noble thoughts. Somebody once gave me a little motto. I have it on the shelf where I can see it constantly—

"There is a place that you can fill,
A work that you can do,
That no one can and no one will
Do just as well as you."

**—"Vuv Luv."**

MY son's dog, Tip, was born on Christmas Day six years ago. He is very intelligent and has been trained from a puppy to be harnessed to a cart. The first one was a light box on two wheels, and his cargo consisted mainly of kindling wood or grass cuttings. Now a full-grown, powerful dog, he pulls a four-wheel cart with a fair load. He obeys commands as well as a pony, stopping immediately when told, and he is also expert at going through gates. He really enjoys being harnessed to the cart and barks joyously as though looking forward to the reward he always gets when the last load is carted. **—"A.R.T."**

OUR days are full of rain and mists and fallen leaves lying in drifts, deep enough to paddle in. . . . Have you read Rita Snowden's latest book, "A Thousand Sunrises"? It has such treasures in its pages:

"I do not own an inch of land,
But all I see is mine . . .
The winds my tax-collectors are,
They bring me tithes divine—
Wild scents and subtle essences,
A tribute rare and fine:
And more magnificent than all,
My window keeps for me
A glimpse of blue immensity,
A little strip of sea."

**—"Tinkle Tinkle."**

WE get a very good range of books through the Country Library Service van. I've read all Marion Cran's gardening books and all I could procure of Beverly Nicholls'. Have you read his book "Green Grows the City"? It is one of his best gardening books. He has also written a book, "Verdict on India," the story of a personal trip through India, and it presents a striking contrast to our everyday conception of the problem of Indian independence.—**"Vista."**

I HAVE just knitted some ski-ing mittens (but not for ski-ing). I used a Tyrolean design—little men and women in black hats and boots, blue pants, and red shirts, against a grey background. I knit summer gloves, too, in ecru cotton, and for winter I knit Fair Isle mitts in wool and gloves with cuffs or gauntlets.—**"N.G."**

## SPRINGTIME

*There is something in the softness of the air, in the lengthening of the days, in the very sounds and odours of the sweet time, that caresses us and consoles us after the rigorous weeks of winter.— P. G. Hamerton.*

DO you ever have extra special busy times in your already busy life? The last few weeks here have been packed full—meetings, a Red Cross bazaar, a wedding in the clan, and lots of visitors. My writing is not getting much chance to flourish. That reminds me . . . when I was writing about England and thinking of her history these lines of K. W. Baker's came into my mind. I am sure you will love them, too—

"Let me grow lovely, growing old,
So many old things do:
Laces and ivory and gold
And silks need not be new.
And there is healing in old trees,
Old streets a glamour hold.
Why may not I, as well as these,
Grow lovely, growing old."

**—"Cloudy."**

## *LISTENING*

*I've been listening to the buzzing in the wild rosemary bushes;*
*I've been listening to the rustlings in the tall green grass;*
*I've been counting all the new leaves that are thrusting through the poplars—*
*How I love to greet these people of the meadow as I pass.*
*There's a bumble-bee who's plund'ring all the pollen from the poppies;*
*There's a butterfly who's sipping from the blue clematis vine;*
*There's a dragonfly who's drinking with his gauzy wings a'flutter,*
*He's quaffing draughts of nectar and sweet elderberry wine.*
*There's a movement 'mong the grasses in the opalescent twilight,*
*When the sun is sinking low behind the little laughing hills;*
*There's a quiet peace descending with the covenant of evening,*
*When the winged folk of meadow-land respond with drowsy trills.*
*—Florence Morgan.*

THERE is a white heath down the drive that looks like an evergreen laden with snow. The fantails are back, and fat blackbirds, having grown plump on the orchard's yield, amuse themselves by pulling out the frail plants I have so carefully planted. **—"M."**

I DO like the new covers the "Journal" wears nowadays. They really are striking, aren't they? How are you off for fires in Wellington this cold weather? We have cut down every tree that can be spared, so we've managed all right so far. I expect the florists' shops will soon be gay with spring flowers. Our bulbs are only just through, but the gardens are always later here.—**A. M. Dowell.**

MAY I join your circle? I noticed that one contributor is extracting apple juice to mix with other fruit when making jam. This is known as pectin, and in a pamphlet issued by the English Ministry of Agriculture there is a recipe for making pectin stock which can be bottled and kept for later use. If anyone is interested in this I would gladly send the directions.—**"Lincoln."**

FROM the Cape to the Bluff I would like really to see New Zealand—to explore such places as the Waitomo Caves, Rotorua, the glaciers, and the various scenic reserves.—**"J.E.S."**

DO you remember the recurring dreams I wrote about for the "Strange Dreams" competition? It was of a friend taken prisoner of war—I always dreamed of him prior to receiving news of him. Here is the sequel: I had dreamed while he was in Germany—and long before VE day—that he had returned safely. Well, he has been rescued, more dead than alive, being in a semi-starved state. Last week we had a letter from him written in England saying that he was safe and sound and fully recovering. He was so grateful for all the wonderful things done for him and wrote in high spirits just before he was due to go on leave.—**"Tiggetty Boo."**

MY first trip away from home with my family of three was an ideal one for a King Country mother—I had a furnished house by the sea at Devonport put at my disposal for a month. We were delighted with our temporary home, especially with the view of the harbour and its ever-changing scenes. The neighbours must have thought us intrepid sightseers as our little procession hurried down the garden path almost every day on some expedition or other. We enjoyed visits to the city as well as to the beaches, and the trip across the harbour was as exhilarating to the grown-ups as it was to the children. High lights of the holiday were a day at the Zoo; Easter Saturday at Milford Beach; watching the flying-boats on weekend practice; and the visits of a cousin who brought with him his moving films depicting his trip to America.—**"Early Dawn," Taumarunui.**

## THE BLIND SPRING

White is the swift wind, like a gull on the wing
That wailing seeks
On the lost sea waters a resting place;
Sad are the white winds as they call to the Spring,
But dim are the mists o'er the blind Spring's face,
And she wakes not yet.

Warm is the swift wind, like the breath of a flower
That opens dreams
In the scented heat of the noon-day rest;
Soft are the warm winds in the spring's waking hour,
But blind wreathe the mists on her sleepy breast,
And she wakes unseen.

Sweet is the swift wind, like the voice of the Spring
That gently breathes
O'er the cradled bud as it stirring lies;
Glad are the sweet winds, and the song they sing,
For gone are the mists from her wondering eyes,
And the blind Spring sees.

—FRANCES LAURIE.

OUR hopefuls have reached the age where they are keen to fish, so we spend holidays at our fishing shack. Swimming and rowing, and the satisfaction of doing just as one pleases each day with no bogy of routine to follow, leave little to be desired. So I have not yet tripped away to the winterless north or those fascinating lands overseas, but I am pretty certain that peaceful fishing shack will see me round about as often as possible!—**"Roundabout," K.C.**

WHEN we were children we spent our Christmas holidays with friends on a farm. The days were packed full with exciting doings—swims in the river, picnics to the bush, excursions to the sea several miles distant, sometimes on the top of the wool-bales, the wagon being drawn by bullocks. One trip nearly ended in disaster. At the mouth of the river, which was tidal, there were often large holes, not always in the same place. This day one hole must have been very "out of place," for without warning the wagon suddenly listed sideways, greatly endangering the load. The oxen plunged wildly, but with much whip cracking and yelling the driver got the wagon safely pulled out of the hole, and the journey continued without further mishap. Yes, I was on top of that load, and very frightened, too. I don't think I ever had the same enthusiasm for bullocks again! Harvesting followed the Christmas festivities, then cherry picking, accompanied by an orgy of stoning and eating. All too quickly the summer days sped by, each bringing some special memory of its own with a promise of further joys to come.—**"Spring," Masterton.**

### *IN THE COUNTRY*

*I once saw a picture of ivory and green*
*That held me in spell as I passed.*
*A pear tree clouded with sheeny bloom*
*Shone in the sunlight one spring noon;*
*Its petals fell like snowflakes fast;*
*And underneath, on the emerald grass,*
*White fowls vaunted their plumage fair,*
*Rivalling the blossoms on the pear.*

HOW country people look forward to mail-days, especially those of us who receive only a weekly service. The arrival of the green bag is the signal for a stop-work meeting on the front steps, generally accompanied by a tray of tea with scones or cookies. Who knows what mysteries lie within? Two or three letters are certainties, and so are the papers and magazines, but there's invariably something new or exciting. And a good cup of tea is fortifying in any case!

—**"Dorothy."**

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# Lemon Lore

LEMONS have many uses. As a source of vitamin C they are invaluable, and when the juice is taken in a glass of hot water first thing in the morning both liver and complexion benefit. Or if you prefer a cool drink, prepare the juice overnight and add some sultanas to it. A hot lemon drink at suppertime will prove helpful to those who have difficulty in getting to sleep.

A dash of lemon juice improves the flavour of most stewed fruits, especially apples and rhubarb, and its inclusion in the syrup in which quinces are cooking causes them to attain a delicate pink colouring. If added to rice that is being boiled, it will keep the grains separate and make them dazzling white. When sprinkled over sliced bananas, pears, or apples it prevents them from turning brown. It increases the food value of salads when used in the dressing or mayonnaise instead of vinegar. Boiled fish stays firm and well-flavoured if lemon juice is put into the water while the fish is cooking. And if you are using dripping in buns, cakes, or pastry, a teaspoonful of lemon juice will successfully disguise the "dripping taste."

Lemon rinds should never be thrown away, but used grated in custards and milk puddings, steamed puddings and pancakes, or preserved in sugar as candied peel, or made into marmalade. The best way to keep lemons for any length of time is to dip them in white of egg, making sure that they are coated all over. Leave them to dry and then place them on a shelf with sufficient space between each lemon to prevent them touching. Wash the white of egg off before using.

### LEMON DESSERT.

1 cup sugar, 1 tablespoon butter, 1 lemon, 2 tablespoons flour, ½ pint milk, 2 eggs.

Cream the butter and sugar together, then add the sifted flour. Mix in the juice and grated rind of a lemon, the milk and the beaten yolks of the two eggs. Whip the egg-whites stiffly and fold these into the mixture just before pouring it into a buttered pie-dish. Set the dish in a larger one filled with hot water and bake in a moderate oven for 1 hour.

### QUEENSLAND JELLY.

1¼ tablespoons arrowroot, 1 egg, 3 tablespoons sugar, 1 lemon, water.

Mix the arrowroot to a smooth paste with a little cold water. Add the egg well beaten, and the sugar and juice and grated rind of the lemon. Stir all together and add sufficient boiling water to make one pint. Continue stirring till the mixture comes to the boil, and boil 3 minutes. Pour into individual glass dishes or a mould, and serve cold.

### LEMON PUDDING.

2 large lemons or 3 small ones, raw sugar, 3oz. suet, 1 teaspoon baking powder, 1½ cups flour.

Sift the flour and baking powder, work in the grated suet and mix to a stiff paste with cold water. Roll out on a floured board and line a greased pudding basin with the pastry. Wash the lemons and put them into the basin and almost fill the basin with raw sugar. Cover the top with a round of suet crust, sealing it down well at the edge. Steam for 4 hours. Serve hot. There is no need to make a sauce to go with this pudding as the lemons and sugar form a rich golden syrup.

### LEMON MOULD.

2 cups milk, 2 dessertspoons gelatine, 3 tablespoons sugar, 1 lemon, 2 eggs, water.

Beat the egg yolks and sugar together, and stir into the milk which has been brought to the boil. (Do not let the custard boil). Dissolve the gelatine in ½ cup of hot water, and add it to the milk, also the finely grated rind of a lemon. Whip the egg-whites stiffly and fold in. Pour into a mould and leave to set.

### BAKED LEMON AND APPLE PUDDING.

Apples, raw sugar, butter, lemon.

Peel and slice cooking apples and

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arrange them in a dish as you would for a pie. Sprinkle over them the juice and grated rind of a lemon (add a second lemon if you are using a large quantity of apples), raw sugar to taste, and dot with butter. Bake in a moderate oven till the apples are cooked.

### LEMON FRITTERS.

½ cup milk, ½oz. butter, ½oz. sugar, lemon, 1½oz. cornflour, 2 small eggs.

Blend the cornflour and sugar with the milk, stirring till it comes to the boil. Add the butter and continue stirring till the mixture leaves the side of the saucepan. Add the eggs one at a time, and then the grated rind of ½ a lemon. Have a pan of hot fat ready and place in this small mounds of the mixture about the size of walnuts. Fry till golden brown, then remove from the fat and drain well. Sprinkle with sugar and lemon juice and serve piping hot.

### LEMON SYRUP.

2 lemons, 1 quart water, 1½lb. sugar, 1oz. citric acid.

Extract the juice from the lemons and cut the rind into small pieces. Place in a large bowl or jug, add the sugar and pour the boiling water over, stirring till the sugar is dissolved. Leave to cool and then add the citric acid. The syrup is then ready to bottle.

### LEMON BARLEY.

¼lb. barley, 2 lemons, 2oz. sugar, 1 quart of water.

Wash the barley thoroughly, and just cover it with cold water. Add the sugar and the rinds of the lemons very finely grated. Then pour the boiling water over, and stir to dissolve the sugar. When cold mix in the lemon juice, and strain. The beverage is then ready to use.

### LEMON CAKE.

2 eggs, ¼lb. sugar, 5oz. flour, 3oz. butter or dripping, 1¼ teaspoons baking powder, 1 tablespoon milk, lemon.

Cream the fat and sugar and add the eggs one at a time, then the milk. Sift in the flour and baking powder, and lastly ½ teaspoon finely grated lemon rind. Pour into a buttered cake tin and bake in a moderate oven. Leave to cool and ice, using the juice of a lemon to moisten the icing sugar. Top with chopped walnuts.

### LEMON COOKIES.

1½ cups wholemeal, 1 cup sugar, 1 lemon, ⅓ cup butter, ⅓ cup lard, 2 eggs, ½ teaspoon baking soda, 4 tablespoons hot water.

Cream the butter, lard and sugar, then add the eggs. Dissolve the soda in the hot water, and add to the mixture. Stir in the wholemeal, 1 tablespoon of lemon juice and the grated rind of the lemon. Mix well together and drop teaspoonfuls on a floured tray. Bake in a quick oven.

### LEMON BUNS.

2 eggs, 2oz. butter, 2oz. lard or dripping, 1 teaspoon baking powder, 12oz. flour, 5oz. sugar, 1 lemon.

Sift the flour and rub in the butter and lard or dripping. Add the sugar, baking powder, grated lemon rind and a little of the juice, and mix to scone consistency with the beaten eggs. Turn on to a floured board, shape into buns, and cook on a greased shelf in a quick oven for 20 minutes.

### LEMON BISCUITS.

2oz. butter, 2oz. lard, 1 egg, 8oz. flour, 1 lemon, 4oz. sugar, ½ teaspoon baking powder.

Cream the butter and sugar, lightly beat in the egg, sift in the flour and baking powder, and add the grated lemon rind and 1½ teaspoons lemon juice. Drop in spoonfuls on an oven tray and bake at biscuit heat about 12 minutes. Join together in pairs with lemon icing.

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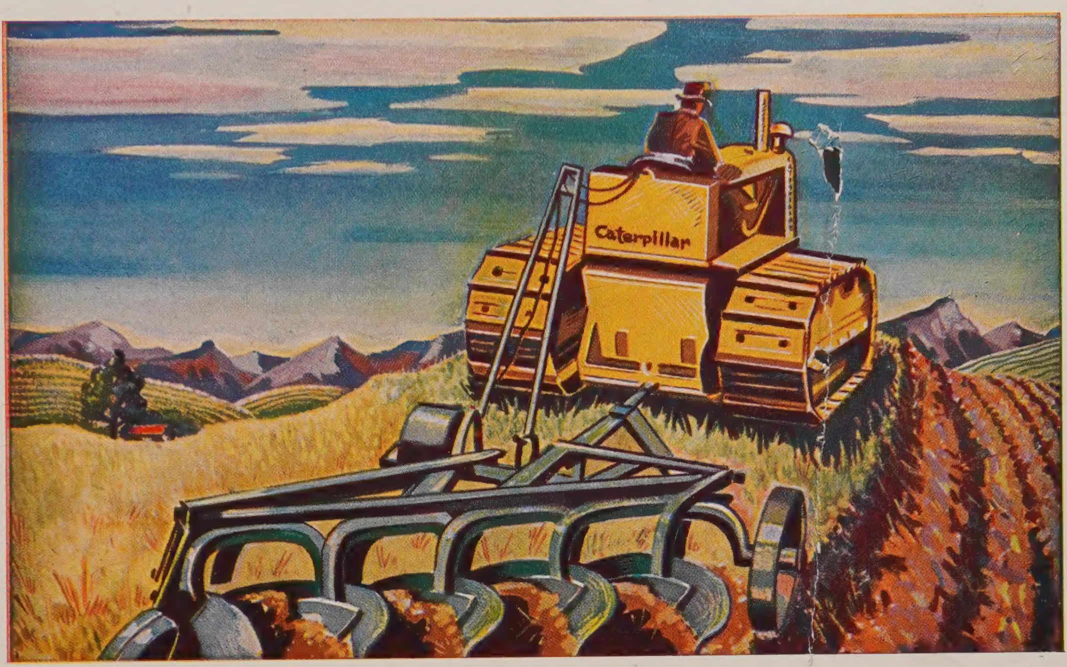

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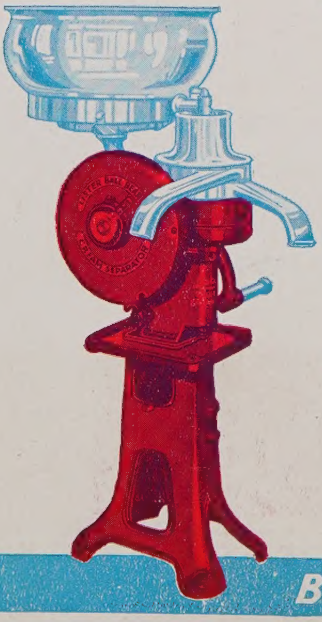

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